PIT AND QUARRY

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SEPTEMBER, 1942

FOR 25 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

LUDLOW-SAYLOR

CONTROLLED-TEMPER SUPER-LOY WOVEN WIRE SCREENS

for super-severe service

●

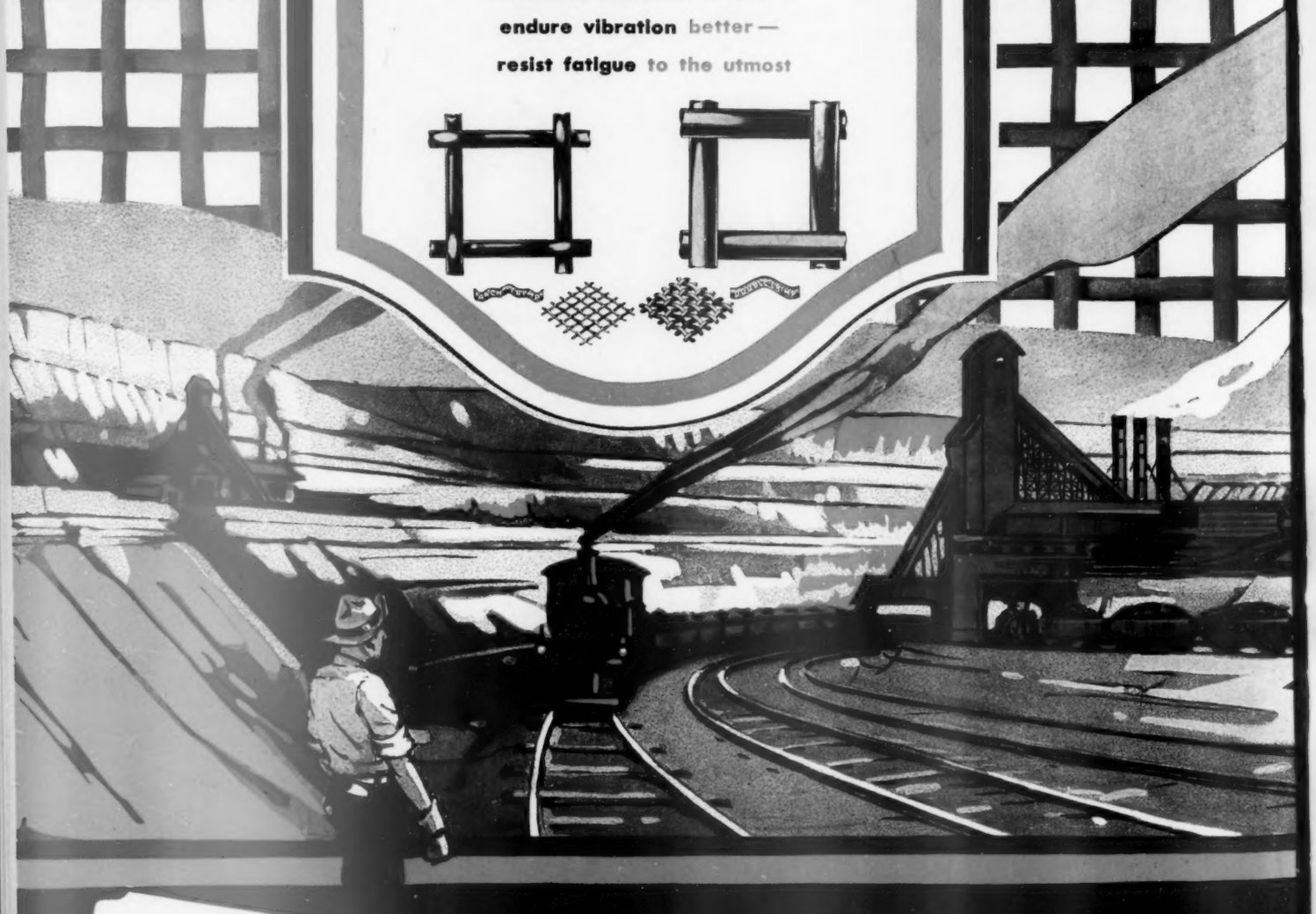
SUPER-HARD, SUPER-TOUGH, SUPER-STRONG

CONTROLLED-TEMPER SUPER-LOY WOVEN WIRE SCREENS

withstand abrasion longer—

endure vibration better—

resist fatigue to the utmost



The background at top of page shows the "Perfect" Double-Crimp Weave.

The small cuts in the center panel compare Arch-Crimp Weave and Double-Crimp Weave.

The border at foot of page shows "Perfect" Double-Crimp Steel Wire Cloth which has been hot-dip galvanized after weaving.

Samples on request.

The LUDLOW-SAYLOR WIRE COMPANY SAINT LOUIS

SEP 26 1942
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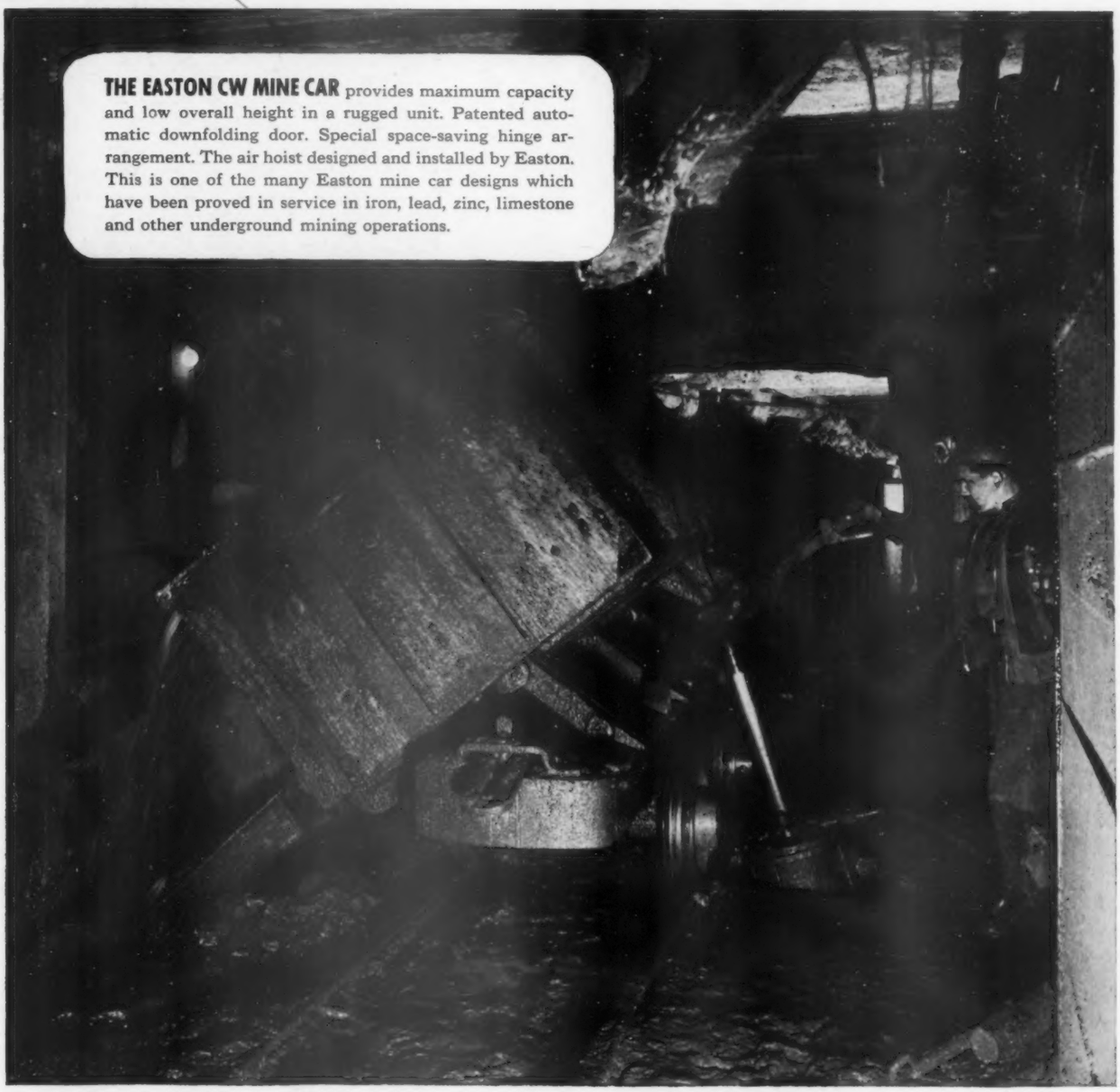

THE EASTON CW MINE CAR provides maximum capacity and low overall height in a rugged unit. Patented automatic downfolding door. Special space-saving hinge arrangement. The air hoist designed and installed by Easton. This is one of the many Easton mine car designs which have been proved in service in iron, lead, zinc, limestone and other underground mining operations.

WET ORE IN A LOW, NARROW DRIFT

It's wet iron ore and it sticks like heavy mud! The haulage ways are so narrow that you flatten against the wall to let the cars roll by. Because of limited overhead clearance the cars are built as low as possible. And there's no room for a weakness anywhere when the container is bounced on the hoist to shake loose those tons of sticky ore. Easton CW Mine Cars have licked this tough job through months of triple-shift War Production.

Duplicated on no other installation, the Easton CW Car is a product of Easton haulage engineering – in this case to meet the specific conditions of wet ore and narrow drifts. *Your* haulage problem, in open pit or underground mine, in quarry, or in factory, *is different, too.* To help you to achieve your desired capacity at lowest cost per ton in any material handling operation Easton Engineers are at your service. Write to Easton Car & Construction Co., Easton, Pa.

EASTON

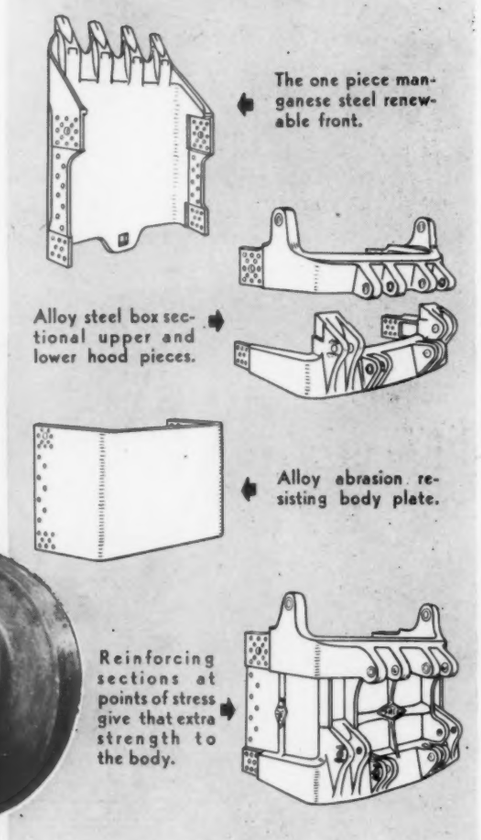
INDUSTRIAL CARS · TRAILERS · ELECTRIC LIFT TRUCKS

PIT AND QUARRY, September, 1942. Vol. 35, No. 3. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago, Ill. Subscription price $1 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.

Step up your yardage

WITH PMCO WELDED DIPPERS

Weight saved in the dipper is added to pay load.


The one piece manganese steel renewable front.
Alloy steel box sectional upper and lower hood pieces.
Alloy abrasion resisting body plate.
Reinforcing sections at points of stress give that extra strength to the body.

BY reducing dipper weight with welded construction, additional pay load capacity is added to the shovel, in some cases as much as 30%. Welding permits reinforcing of stress members (see illustration) to make an exceptionally strong dipper unit. Investigate PMCO Welded Dippers for added yardage capacity on your next shovel.

We operate the largest and most complete manganese steel foundry in the United States

PETTIBONE MULLIKEN CORPORATION

Established 1880

4710 West Division Street, Chicago, Illinois

It Revels in Rock-

LORAIN-80

of Big Rock Stone & Material Co.

LITTLE ROCK, ARK.

feeds hungry crushing unit

● No job is too tough for a real rock shovel—that's why Big Rock Stone & Material Co., use this Lorain-80 in their quarry near Little Rock, Ark. They need a machine that will keep pace with the increased production demanded for defense projects—a machine that they can work 24 hours a day, if necessary, to feed their new crushing unit.

The Lorain-80 just rolls up its sleeves and goes to work in rock service. Its rugged, all-welded boom is designed to take more punishment than any rock digging or any operator can give it, and Center Drive design of turntable makes for *faster* digging through direct-to-the-point power transmission.

Ask your Lorain distributor for complete information on the Lorain-80 or any shovel or crane in the ⅜ to 2-yd. Lorain line. See him, too, for genuine factory-made repair parts, and expert rebuilding or repair service. He can help Lorain owners make present equipment last longer and work faster.

THE THEW SHOVEL COMPANY• *Lorain, Ohio*

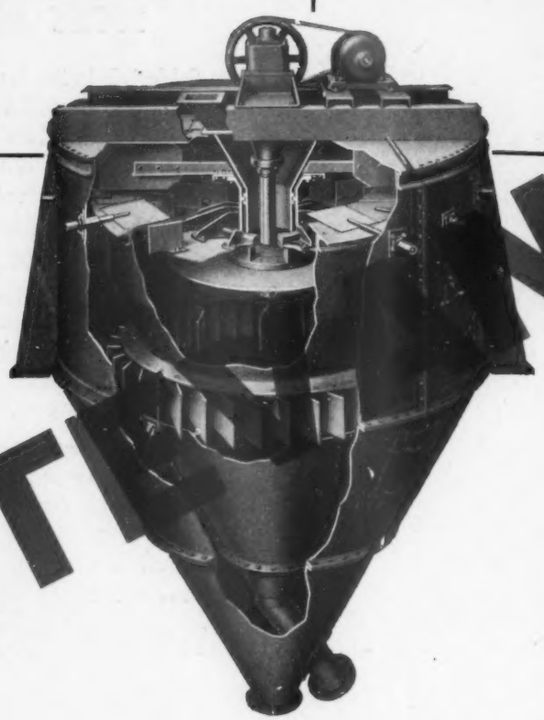
THEW CENTER DRIVE

THEW-LORAIN CRANES • SHOVELS DRAGLINES • MOTO-CRANES

Watch the Score go up!

STURTEVANT Installations in Cement Plants		
RUNS	Hits	Errors
317	317	NONE

. . . and
GROWING FAST!



STURTEVANT

Centrifugal Air Separator

317 STURTEVANT Air Separators have been installed in the cement industry alone. All were accepted on approval . . . none rejected.

Write for Information

This famous unit heads the "percentage" columns for Profit-efficiency. It is setting output and economy records in classifying products from 40-mesh to 350-mesh and micron sizes.

Experienced producers rely on STURTEVANT'S proved performance and advanced engineering, which features positive control of particle size, lowered temperatures, and uniformity of product.

LOOK AT THE SCORE BOARD—then it's easy to pick the winner!

STURTEVANT MILL CO. HARRISON SQUARE BOSTON, MASS.

"KNOW HOW" *Isn't Enough!*

● Simply knowing how to operate Rear-Dump or Bottom-Dump EUCLIDS doesn't mean that the full life and efficiency of the units will be obtained unless the "know how" is carefully utilized. For example, low gears should always be used in starting, but it is a rather common practice to start in one of the higher gears simply to save a little effort. Sure, Euclids will start in the higher gears, even with heavy loads, but this causes excessive wear on the transmission, clutch and other parts, resulting in higher maintenance costs and more time off the job.

Another place where "know how" must be applied is in the use of the instruments on the dash. Those instruments provide an "x-ray" of the engine at a glance — they indicate that it is operating properly or warn that it needs attention. Unless engine operation, fuel and air pressures, etc., are carefully checked every shift before the unit goes on the job, and frequently during operation, damage to parts, inefficient performance and costly delays may occur. By using "know how" to keep the Euclids you own or operate in good condition so that they can do the jobs that bring victory closer, you'll be helping to build a better America of tomorrow.

The EUCLID ROAD MACHINERY Co., CLEVELAND, OHIO

EUCLID

SELF-POWERED HAULING EQUIPMENT

For EARTH . . ROCK . . COAL . . ORE

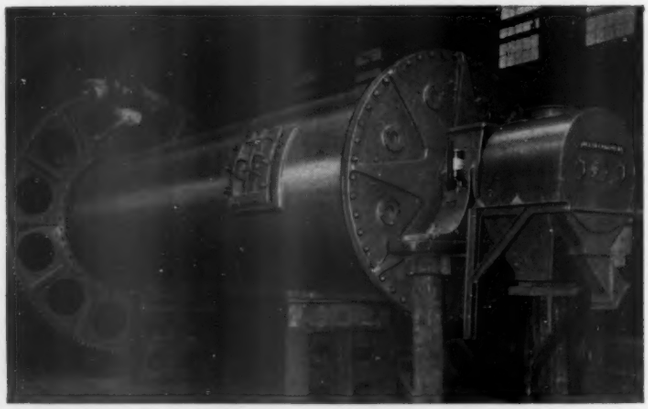
CRAWLER WAGONS • ROTARY SCRAPERS • TAMPING ROLLERS

EUCLID THE PIONEER

11 MILES OF
speed

SECTION OF THIS HEMISPHERE'S LONGEST KILN—11'6" x 475' — for a midwestern cement plant. Welded construction gives greater strength with less weight . . . longer life with less maintenance.

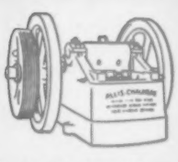
AS HIGH AS 200,000 BTU PER BARREL OF CLINKER ARE SAVED with the famous, modern Allis-Chalmers air quenching clinker cooler.



OVER 3500 ALLIS-CHALMERS CYLINDRICAL GRINDING MILLS are now in service. Shown is an all-welded Ballpeb mill, one of the 30 different types of mills engineered and built by Allis-Chalmers.

ALLIS-CHALMERS AC MILWAUKEE

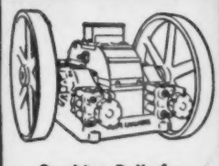
Get "All Out" production with ALLIS-CHALMERS



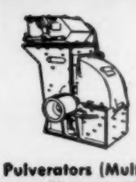
Jaw Crushers—Primary and Fine Reduction

Large Gyratory Crushers Up to 60 in.

Type "R" Crusher with "Speed-Set" Control



Crushing Rolls for Granular Products



Pulverators (Multi-impact Hammer Mills)

ALLIS-CHALMERS KILNS war production!

300,000 Barrels per Day Capacity of Allis-Chalmers Rotary Kilns in Service Equals Almost 2/3 of Peak U. S. Output.* Here Are the Facts on How Allis-Chalmers Cooperative Engineering Service Helps Increase Cement Production!

ELEVEN MILES OF KILNS BUILT! An active capacity of 300,000 barrels per day! That's the part Allis-Chalmers is playing in the vast production program designed to overwhelm the Axis.

Since 1899, when our first 6′ x 60′ kiln was built, up to the recent 11′6″ x 475′ giant—among the world's largest — Allis-Chalmers Cooperative Engineering has been working with the cement industry . . . improving both the mechanical and thermal efficiency of these machines. Allis-Chalmers developments include welded steel riding rings of the floating type . . . forged steel rollers . . . constant reaction supports . . . the first large two-support kiln . . . air-cooled feed and discharge ends . . . X-ray examination of welded joints.

In coolers, too, Allis-Chalmers has pioneered. The famous air quenching clinker cooler saves up to 200,000 Btu per barrel of clinker . . . increases finish mill capacity as much as 25% . . . gives a stronger, lower-expansion finished cement. And modern control — coordinating kiln and cooler operation — permits precise combustion control.

What's more, unit multi-stage grinding — reducing kiln-run clinker to finished cement in one machine — is another contribution of Allis-Chalmers Cooperative Engineering. Over 3500 Allis-Chalmers cylindrical grinding mills are now in service. And, because we build over 30 different types, you can be sure you get the right mill for your particular requirements.

The next time a production problem comes up in your plant, remember you can put our vast facilities and experience to work for you. Call on Allis-Chalmers Cooperative Engineering service for the answer to wartime production troubles.

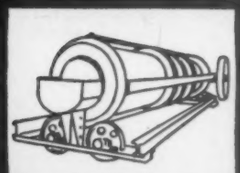
There's a trained engineer in the district office near you. Get in touch with him, or write direct to Allis-Chalmers, Milwaukee, Wisconsin. A 1550A

**1928 production — 176,000,000 barrels.*

COOPERATIVE ENGINEERING

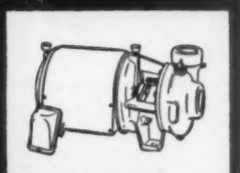
WE WORK FOR VICTORY — WE PLAN FOR PEACE

Low-cost, High-capacity Ripl-Flo Screen



Rotary Scrubber Screens—Complete Washing Units

Sand Washers—Materials Up to ½" Ring Size



Electrifugal Pump — Compact, Low-cost

Lo-Maintenance Motors, Texrope V-Belt Drives

—but it HAS been the secret of pipe-economy for 40 years!

SECRET? Well . . . a good many pipe users are in on it, of course, but sometimes it takes the urge of wartime economy to dislodge certain habits of industry—habits such as just specifying Standard Thickness Pipe for any service that doesn't require a still heavier pipe.

The fallacy in this is that for a great many industrial services, Standard Thickness Pipe is, itself, *"extra-heavy"!* It is a demonstrated fact that Taylor Spiral Pipe weighing about half as much as Standard Thickness, and often costing no more than half as much installed, will handle the general run of water, air, gas and other moderate or low pressure jobs — handle them adequately and with strength and service life to spare.

Certainly from the standpoint of sound engineering it's as bad to err on the heavy side as on the light side. And in times like these, it would seem nothing short of a duty to use the pipe that will conserve the most steel and save the most dollars wherever it can be used.

The complete range of sizes and the wide variety of fittings available, makes it practical and easy to carry out this idea with Taylor Spiral Pipe. Thicknesses range from 18 to 6 gauge; sizes from 4" to 42"; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and "specials" or fabricated assemblies are produced by Taylor Forge, assuring a complete service and undivided responsibility. Why not consider Taylor Spiral for that next job?

Change to TAYLOR SPIRAL PIPE FOR:

- High and Low Pressure Water Lines.
- Low Pressure Steam and Air Lines.
- Steam and Diesel Exhaust Lines.
- Vacuum and Suction Lines.
- Blower Piping.
- Sand and Gravel Lines.
- Industrial Gas Lines.
- Oil and Gas Gathering Lines.
- Swing Pipe.
- Spray Pond Piping.
- Hydraulic Mining.
- Dredge Lines.

★ ★ ★

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P. O. Box 485
New York Office: 50 Church Street
Philadelphia Office: Broad Street Station Building

TAYLOR *Spiral* PIPE

NEED MOTORS FOR WAR WORK?

4 things to do to get them quicker

YOUR AID ON THESE 4 POINTS WILL HELP US PRODUCE AND DELIVER MORE MOTORS

Tri-Clad motors are available in a full range of sizes from 1 to 100 hp. Your General Electric representative can supply complete information and help you get the Tri-Clad motor to do your job. *General Electric, Schenectady, N. Y.*

Your choice of G-E Tri-Clad motors will give you *extra protection* against (1) physical damage, (2) electrical breakdown, (3) operating wear.

General Electric and its employees are proud of the Navy award of Excellence made to the Erie Works for the manufacture of naval ordnance.

SPECIFY TRI CLAD MOTORS

GENERAL ELECTRIC

Use standard, open, sleeve-bearing motors whenever possible

The standard Tri-Clad motor, though classed as an "open" motor, is so well protected that it gives good service on many jobs where special motors often were recommended.

Sleeve-bearing motors often can be supplied more readily than ball-bearing types because of the present demand for ball bearings on other war equipment. Use ball-bearing motors only where load or mounting conditions require them.

Special end shields and other modifications may result in delay for you and others.

Consider the use of standard or multispeed a-c motors in place of d-c motors wherever this alternative is possible.

order motors early . . . giving complete specifications

Place motor orders when you order the machines they are to drive.

If you are planning motor drives for conveyors or other equipment for new plants, place the orders as soon as design work indicates the motor requirements.

Avoid delay and mix-ups by giving complete specifications, preferably on an order form which your G-E motor representative can supply.

give complete priority information, properly endorsed

The filling of many motor orders is delayed because of incomplete priority information. If in doubt about details, call the nearest G-E office.

When placing orders for motors, be sure that complete priority data accompanies *each order* in the form of certificates, endorsements properly signed, etc. The priority is not effective in scheduling shipment until it is received by your supplier.

Your needs and the war effort are best served by using the proper priority rating assigned by the War Production Board for the job involved, and requesting delivery no earlier than actually required.

Under the Production Requirements Plan, builders of motor-equipped machines for subsequent sale may order their requirements in advance.

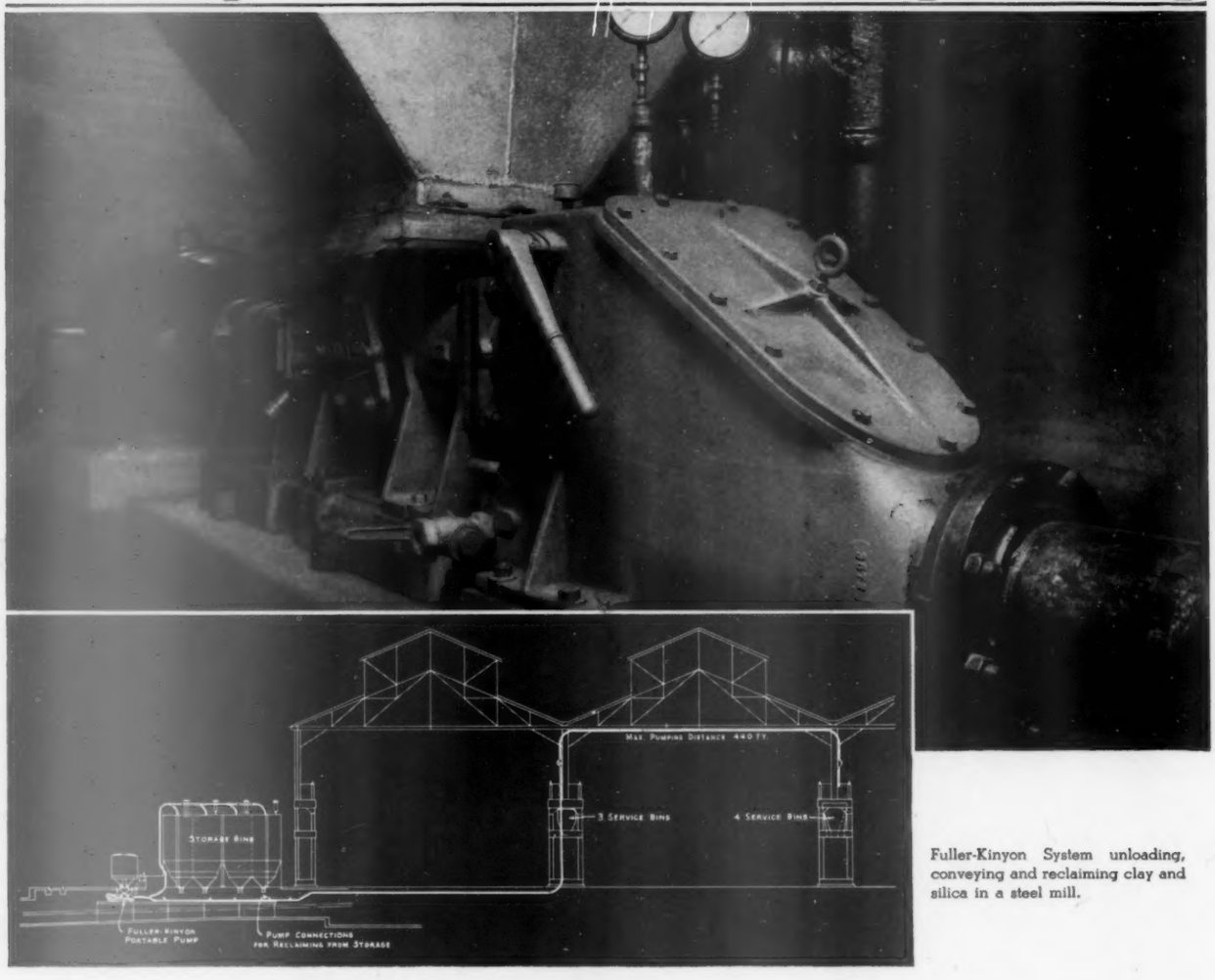
check with G.E. for delivery from local warehouse stocks

To meet urgent war needs, a supply of standard Tri-Clad motors is maintained at G-E factories and local G-E warehouses. Perhaps the motor you want, or can use with a few simple changes, is available for immediate shipment.

Your local G-E motor representative can furnish information on motors which may be in stock in the following cities:

Atlanta, Ga.
Boston, Mass.
Buffalo, N. Y.
Charleston, W. Va.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas
Davenport, Iowa
Denver, Colo.
Detroit, Mich.
Houston, Texas
Kansas City, Mo.
Los Angeles, Calif.
Milwaukee, Wis.
Minneapolis, Minn.
New York, N. Y.
Oklahoma City, Okla.
Omaha, Neb.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
St. Louis, Mo.
Salt Lake City, Utah
San Francisco, Calif.
Seattle, Wash.

Convey . . . The Fuller-Kinyon Way



Fuller-Kinyon System unloading, conveying and reclaiming clay and silica in a steel mill.

One Ton or 300 Tons an Hour . . . Elevations to 500 feet . . . Distances to 5000 feet

SOME MATERIALS CONVEYED BY FULLER-KINYON SYSTEMS

Arsenic dust	Dextrine
Asphalt filler dust	Dolomite
Bag fume	Gypsum (raw and calcined)
Baroid	Lime (quick)
Barytes	Magnesite
Cement (Portland)	Manganese dioxide
Cement raw materials	Ore (pulverized)
Clays (dry)	Rock dust
Colox	Siliceous powder
Copper converter dust	Silica
	Starch (pearl)
	Starch (powdered)

TODAY, more than ever before in history, material handling must be quick and efficient . . . equipment must stand up under unprecedented demands without failure . . . breakdowns, as far as possible, must be avoided.

The Fuller-Kinyon System is built for the rough going of today. Rugged construction, simple in design, it will give you unfailing service day in and day out with no extraordinary attention or expense. Only one moving part, the screw in the pump . . . replacement can be made quickly.

Materials conveyed through pipe lines by air . . . no drags, chains, links, etc. Pipe lines can be hung overhead or underground; will not interfere with other equipment or operation in the plant. The system is clean, silent and explosion proof.

Tell us about your conveying problems. Chances are we can help.

P-53

FULLER COMPANY

CATASAUQUA — PENNSYLVANIA

CHICAGO—Marquette Bldg. SAN FRANCISCO—Chancery Bldg.

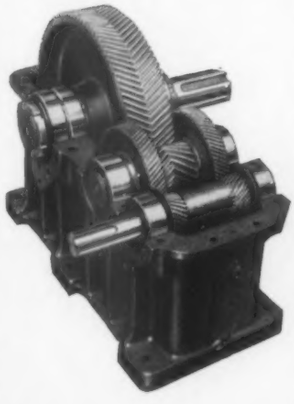
KEEP THEM ROLLING WITH JONES

JONES Herringbone Speed Reducers in ratings from 1 to 400 horsepower, and all the other types of Jones Speed Reducers, gears and transmission products are playing their part today in the "all-out" production program.

These are products that are built with old time craftsmanship and once they start rolling they keep on rolling.

If any of our products or engineering service will be helpful to you we shall do our best to render as much assistance as possible. Our Bulletin No. 80 "Jones Drives for Industry" will give you a clear picture of our transmission products and manufacturing facilities. Your request will bring a copy by return mail.

W. A. JONES FOUNDRY & MACHINE CO., 4441 Roosevelt Rd., Chicago



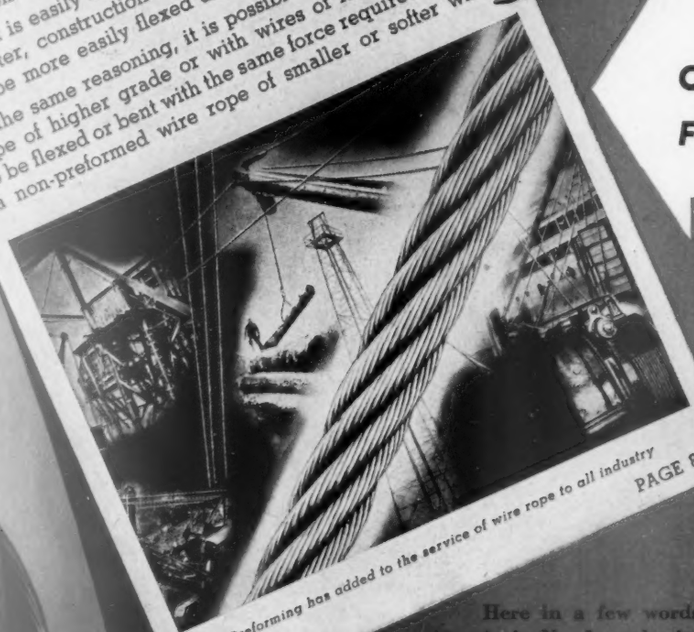
Jones

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

Why HAZARD LAY-SET *Preformed* Lasts So Much Longer

Wires of Preformed Rope are at Rest

The wires and strands of a PREFORMED wire rope are not under such internal stress. They are at rest, ready to bend in the direction required of them without offering opposition further than resistance in the metal itself. Thus, it is easily seen that, given two ropes of the same diameter, construction and grade, the preformed rope will be more easily flexed around the sheave or drum. By the same reasoning, it is possible for a PREFORMED rope of higher grade or with wires of larger diameter to be flexed or bent with the same force required to bend a non-preformed wire rope of smaller or softer wires.



Preforming has added to the service of wire rope to all industry

PAGE 89

AND THEREBY CONSERVES STEEL FOR THE NATION

Here in a few words the "MODERN WIRE ROPE DIGEST," America's No. 1 authority on wire rope, explains *why* Hazard LAY-SET lasts so much longer—gives so much better service—than ordinary non-preformed wire rope. Proper preforming gives LAY-SET amazing fatigue resistance; kink-resisting flexibility; makes it easier and faster to reeve; safer to handle. LAY-SET PREFORMED is the greater-dollar-value rope.

LAY-SET PREFORMED is backed by 96 years of rope-making experience and by a company that has clung so tenaciously to quality materials, manufacture and service that it has on its books many firms who have used Hazard ropes continuously for 40, 50 and 60 years. All Hazard ropes identified by the Green Strand are made of Improved Plow Steel.

GREEN SIGNIFIES SAFETY

HAZARD WIRE ROPE DIVISION

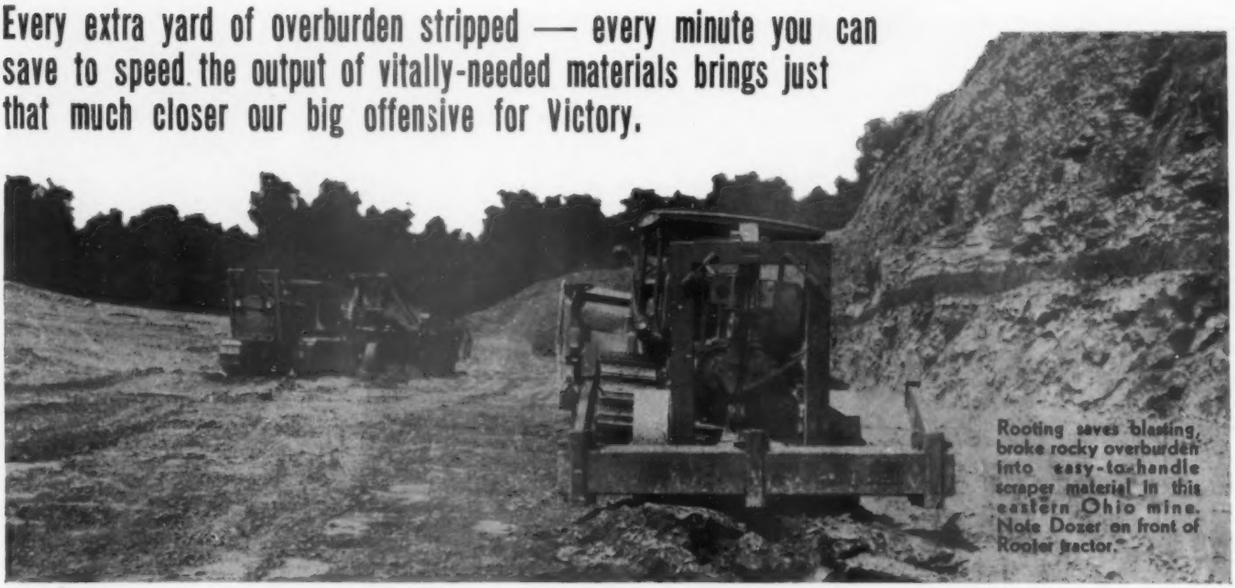
Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Fort Worth, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Tacoma

AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT, CONN.

HAZARD LAY-SET *Preformed* WIRE ROPE

Every extra yard of overburden stripped — every minute you can save to speed the output of vitally-needed materials brings just that much closer our big offensive for Victory.



Rooting saves blasting, broke rocky overburden into easy-to-handle scraper material in this eastern Ohio mine. Note Dozer on front of Rooter tractor.

How to Strip Bigger Loads Quicker with Your Present Equipment—For Victory

Load LeTourneau Carryall Scrapers Downhill; Use "Wrinkle" Loading Method; Break Up Hard Materials with LeTourneau Rooters

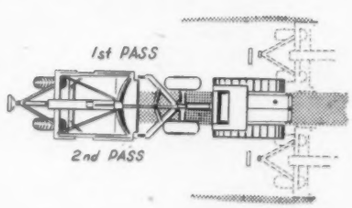
To get bigger loads and more of them quicker with tractor-drawn LeTourneau Carryall Scrapers, try these job-proved stripping methods:

Load Downhill

Preplan your stripping for downhill loading. This creates greater drawbar pull when using older, less-powerful tractors . . . and gives practically the same help as pusher loading when pusher tractors are not available.

Here's Another Loading "Wrinkle"

Many smart scraper users shorten loading time with the "wrinkle method." Here's how it works: Make the first two scraper cuts 4 or 5 feet apart. This loosens the dirt between. Then, on the third cut, load down between the first two passes, picking up the ridge, or "wrinkle" of loosened material. Results: faster, easier loading; bigger loads. The accompanying diagram shows you how.



Root Tough Materials

LeTourneau Rooters profitably increase the materials your scrapers can handle, save blasting in all hard, rocky overburden, except solid rock Again, you increase the yardage your scrapers handle . . . reduce tire wear and scraper maintenance. By hooking a LaTourneau Rooter to your Dozer-tractor rig, you can help solve your own tractor shortage problem.

For other production-boosting ideas, or for help on equipment maintenance and parts, call on your local LeTourneau-"Caterpillar" dealer. See him TODAY!

Move Extra Dozer Yardage This Way . . .

On short-hauls such as feeding grizzlies and shovels, etc., extra yardage can be carried in front of Dozer by working it in a narrow trench. Cut sides act as sideboards, keep dirt from windrowing off ends and build up the load. The accompanying photo shows you how. Try it!

LETOURNEAU

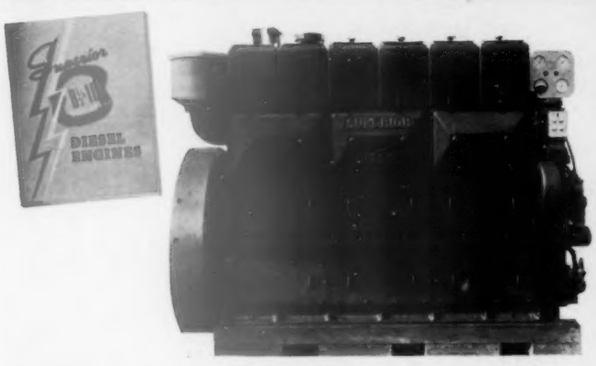
PEORIA, ILLINOIS — STOCKTON, CALIFORNIA

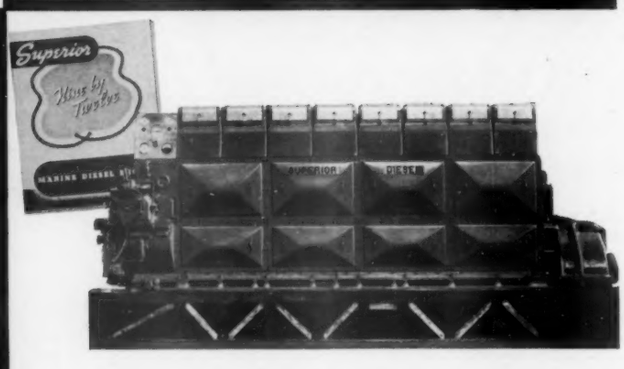
Manufacturers of DOZERS, CARRYALL* SCRAPERS, POWER CONTROL UNITS, ROOTERS*, SHEEP'S FOOT ROLLERS, TOURNAPULLS*, TOURNAROPE*, TOURNATRAILERS*, TOURNAWELD*, TRACTOR CRANES.

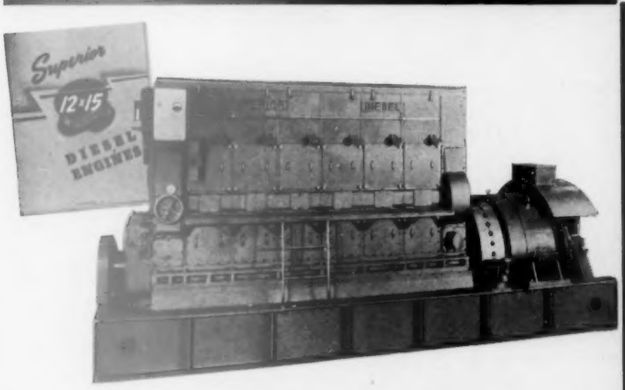
**Name Reg. U. S. Pat. Off.*

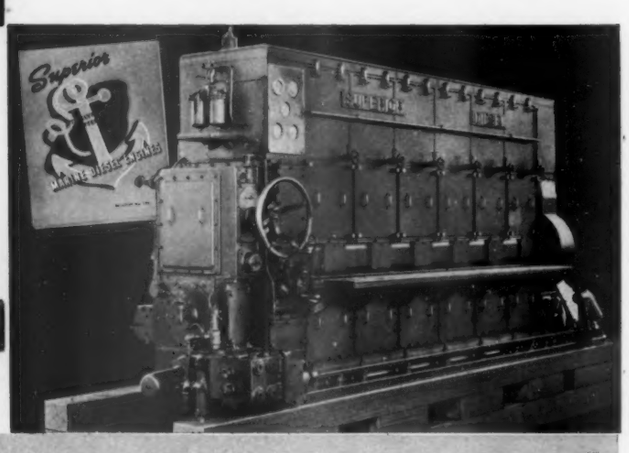
Now IS THE TIME TO GET ACQUAINTED WITH *Superior* DIESELS

Write Today ON YOUR BUSINESS LETTERHEAD FOR THESE *New Bulletins*









THE NATIONAL SUPPLY COMPANY... SUPERIOR ENGINE DIVISION

SALES OFFICES: Springfield, Ohio; Philadelphia, Penna.; New York, N. Y.; Los Angeles, Cal.; Jacksonville, Fla.; Houston, Texas; St. Louis, Mo.; Fort Worth, Texas; Tulsa, Okla.; Boston, Mass. FACTORY: Springfield, Ohio;

13-B Telsmith Gyratory Crusher

CRUSHING 190,595 TONS ... repair parts and labor cost 1/10¢ per Ton WITH THIS TELSMITH CRUSHER

RALPH E. MILLS, of Roanoke, Va., who heads the general highways contracting firm bearing his name, owns the completely modern Telsmith-equipped Arlington Stone Co. plant at Leesburg, Va. He not only knows highway construction and materials, but the kind of quarry plant equipment best suited to turn out crushed stone for highway construction.

● Has Mr. Ralph E. Mills' choice of Telsmith equipment for his own quarry plant been justified by results? Let's look at the record of the 13-B Telsmith Gyratory Crusher. Used as an intermediate crusher for plus 2½", it takes the feed from the primary at 80 to 90 tons per hr.

From the start of plant operations, Sept. 1, 1939, to Dec. 31, 1941, this Telsmith Crusher worked 3,941 hours, and crushed 190,595 tons. Repair parts cost $126.77. Labor charged to crusher maintenance: $55.73. Total crusher upkeep for 16 months: $182.50—*less than 1/10¢ per ton!* And the stone crushed is particularly hard and abrasive.

"Cost of lubricating oil is not included," says Mr. Mason M. Schoolfield, Plant Supt. "The figures do include all manganese costs—because there haven't been any. It is still operating with the original concaves and mantles. We bought two sets of concaves, one standard, the other extra thick to make smaller stone . . . the extra thick set has operated about four-fifths of the time. Both sets are still in good condition. The largest single item in the above cost figures was not crusher parts at all, but a new set of V-belts. In view of the type stone we are handling here, I think the figures are very remarkable!" You can get results like this in your plant—with Telsmith equipment! Get Bulletin Q-15.

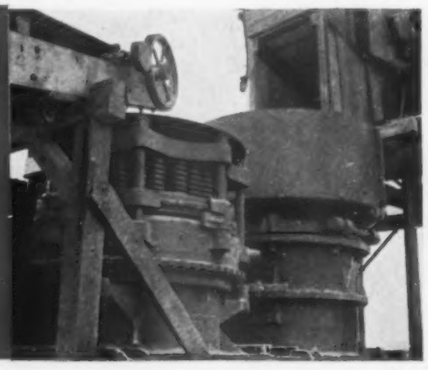
SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE, WISCONSIN

Cable Addresses: Sengworks, Milwaukee—Concrete, London

Q-7

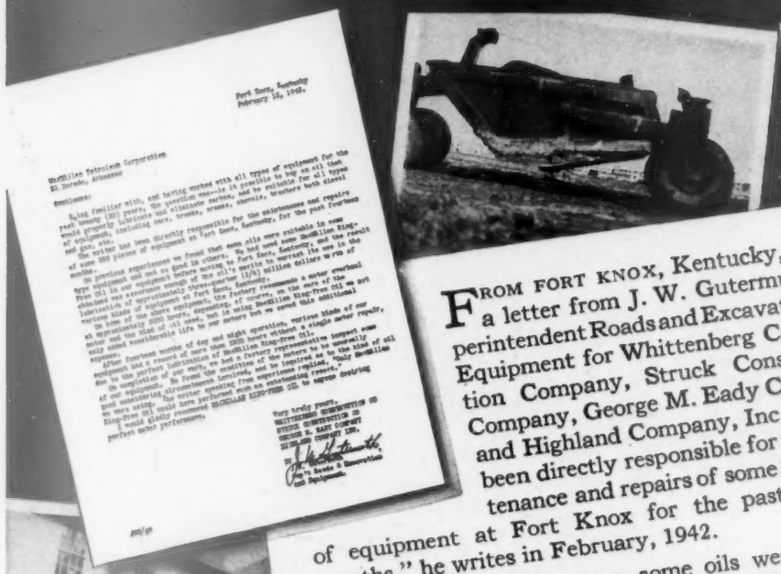
Room 1604—50 East 42nd St. New York City
211 W. Wacker Drive Chicago, Ill.
713 Commercial Trust Bldg. Philadelphia, Pa.
19-21 Charles St. Cambridge, Mass.
Blake Equipment Co. Columbus, Ohio
Brandeis M. & S. Co. Louisville, Ky.
Charleston Tractor & Eqpt. Corp. Charleston, W. Va.
Roanoke Trac. & Eqpt. Co. Roanoke, Va.
North Carolina Eqpt. Co. Raleigh and Stateville, N. C.
Wilson-Weesner-Wilkinson Co. Knoxville and Nashville, Tenn.
G. F. Seeley & Co. Toronto, Ont.

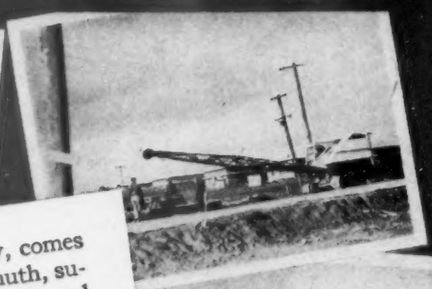
Minus 2½" material passing grizzly, and discharged from 13-B Telsmith Gyratory Crusher, drops onto 28" x 35' Telsmith Belt Conveyor, is carried to Telsmith No. 7 Belt Elevator with 43" centers and goes up to two 4' x 10' Telsmith Pulsator Screens (*left*) over storage bins. Any one of the five finished products can be re-conveyed from bins to the Telsmith No. 36 Gyrasphere Crusher (*right*, with Telsmith Gyratory on extreme right) for re-crushing into ⅜", ½" or ¾" chips.



"An outstanding record" on 385 pieces of equipment

CARS • TRUCKS • CRANES • SHOVELS • DIESEL AND GAS TRACTORS





FROM FORT KNOX, Kentucky, comes a letter from J. W. Gutermuth, superintendent Roads and Excavation and Equipment for Whittenberg Construction Company, Struck Construction Company, George M. Eady Company, and Highland Company, Inc. He "has been directly responsible for the maintenance and repairs of some 385 pieces of equipment at Fort Knox for the past fourteen months," he writes in February, 1942.

In previous jobs, he says, some oils were good in some types of equipment "and not so good in others." His experience with Macmillan RING-FREE was reason enough for him to use it on $750,000 worth of equipment at Fort Knox.

On some of this equipment, the factory recommends overhauls at about 2,000 hours. But—

"After fourteen months of day and night operation," continues Mr. Gutermuth, "various kinds of our equipment had a record of more than 3,300 hours without a single motor repair, due to the perfect lubrication of Macmillan RING-FREE Oil."

When a factory representative inquired what oil had been used, Mr. Gutermuth replied:

"Only Macmillan RING-FREE Oil could have performed such an outstanding record.'

Whatever your equipment may be, write us, so that Macmillan RING-FREE can do for you what it is doing for others.

• • •

MACMILLAN PETROLEUM CORPORATION

50 West 50th St., New York
624 S. Michigan Ave., Chicago
530 West 6th St., Los Angeles

MACMILLAN RING-FREE MOTOR OIL

REG. U.S. PATENT OFFICE

Copyright 1942 by Macmillan Petroleum Corporation

Grip a Bending V-Belt

You'll See *How* the CONCAVE SIDE

Saves Belts-Saves Rubber-Saves Power!

Bend *any* V-belt and you can feel it change shape! The top is under tension and grows narrower. The bottom is under pressure—therefore it widens. These two conflicting stresses force a straight-sided V-belt to *bulge* in the sheave groove. (See figure 1 on the right.) This bulging causes uneven wear on the sides of the belt—*shorter life!*

Now look at figure 2. There you see what happens if the V-belt is built with the patented Concave side. The stresses of bending merely straighten the Concave side—making it exactly fit the sheave groove. This means uniform wear and, therefore, *longer life*—a saving in belts, a saving in the Nation's rubber supply. Again, the full side of the belt *uniformly* grips the pulley—carries heavier loads without slipping—another saving of belts and a saving in power too!

Only belts built by Gates are built with the Concave side, a Gates patent.

What Happens When a V-Belt Bends

FIG. 1

FIG. 2

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

Chicago, Ill.
549 West Washington

New York City
215-219 Fourth Avenue

Atlanta, Georgia
738 C. & S. Natl. Bk. Bldg.

Los Angeles, Cal.
2240 East Washington Blvd.

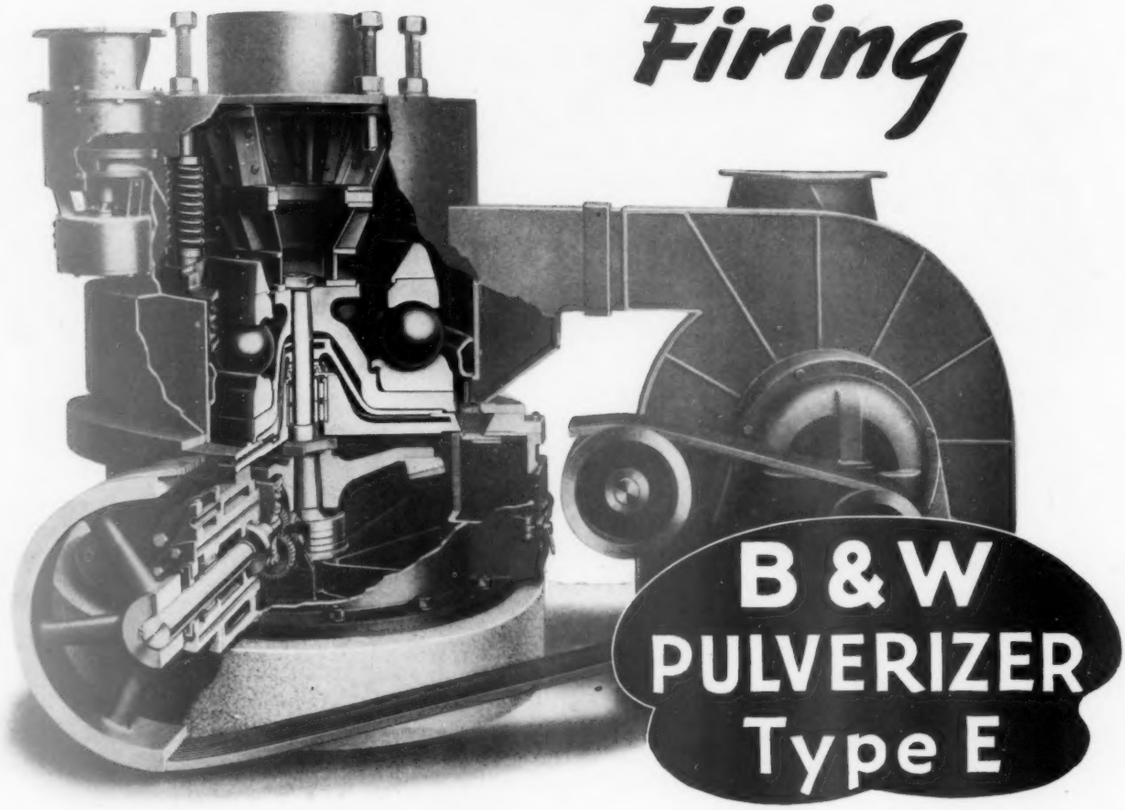
Denver, Colo.
999 South Broadway

Dallas, Tex.
2213 Griffin Street

Portland, Ore.
333 N. W. 5th Avenue

San Francisco, Cal.
2700 16th Street

The LEADING PULVERIZER for Direct Firing



Successful direct firing of rotary cement kilns was developed by Babcock & Wilcox in 1932. Today, 97 cement kilns are direct-fired with B&W pulverizers. This is 44 per cent of all the direct-fired cement kilns now in service.

The modern pulverizer for economical direct firing is the B&W Pulverizer, Type E, illustrated on this page. The Type E mill employs the ball-bearing principle of grinding—used successfully in more than 700 installations.

THE BABCOCK & WILCOX COMPANY
85 Liberty Street **New York, N. Y.**

C-42

BABCOCK & WILCOX

Symons Screens

FOR ALL MATERIALS

MORE ACCURATE SIZING

INCREASED CAPACITY

ORE
•
COAL
•
AGGREGATES
•
MINERALS
•
CHEMICALS
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PULP AND PAPER

★ ★ ★ ★ ★

SIZING
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WASHING
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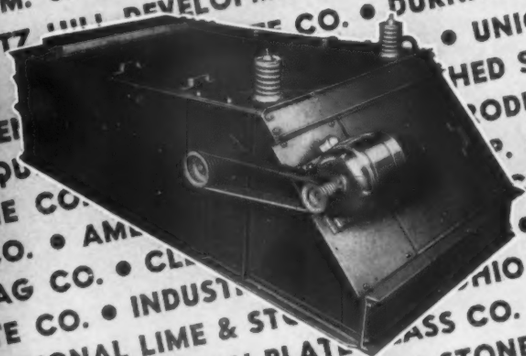
DEWATERING
•
WET CLASSIFICATION



We are proud to serve our country and to have been awarded the Navy "E" for EXCELLENCE in production.

NORDBERG MFG. CO.

MILWAUKEE WISCONSIN

NEW YORK · LOS ANGELES · LONDON · TORONTO

NORDBERG MACHINERY

Mister— you can Lick that Worry!— -with a DEMPSTER DUMPSTER

★ If your worry is a shortage of Trucks . . . if it's a shortage of Men . . . if it's Tires or Gas, you need a Dempster-Dumpster and extra bodies to fit your particular need! Wherever loading is done by hand, as well as many mechanical loading operations, the Dempster-Dumpster system of hauling is more essential to cutting costs now than ever before. In many rock quarries, lime, sand and gravel plants, one Dempster-Dumpster and 4 to 10 extra bodies are now doing the work of 3 to 6 complete trucks and drivers at tremendous savings in labor, investment and maintenance, and doing the job more efficiently with definite increases in profits.

With the Dempster-Dumpster haulage system, men and equipment are never idle. You simply adjust the number of bodies used to suit the job and length of haul. Men are more efficient because of the low, convenient height of bucket for loading. While truck is hauling and discharging one load, other buckets are being loaded for hauling . . . an endless chain of efficiency for saving money. From liquid to dust to heavy materials of any size, you'll find a Dempster-Dumpster to fit your need, in sizes from 1½ to 10 cubic yards capacity.

Send for completely illustrated manual Now! We will appreciate the opportunity of submitting recommendations on your hauling problems without obligation. Dempster Brothers, Inc., 291 Springdale, Knoxville, Tennessee.

DEMPSTER DUMPSTER

Incendiary Bombs FROM SEA WATER

BUELL DUST RECOVERY SYSTEMS PLAY AN IMPORTANT PART

The sea is a limitless source of magnesium—the "miracle metal" that's both fire for incendiary bombs and lightness and strength for the bombers that drop them.

Extracting millions of pounds of magnesium from sea water is the big job of one of America's biggest chemical producers. Details, of course, are secret, but Buell Dust Collectors play an important part here as elsewhere in

CHEMICAL & PROCESS INDUSTRIES
ROCK PRODUCTS INDUSTRY
FOUNDRIES
POWER PLANTS
METALLURGICAL AND OTHER INDUSTRIES

With the patented van Tongeren cyclone (an exclusive feature of Buell Dust Recovery Systems) no extra draft loss or power consumption is necessary to achieve extra collection efficiency. Buell Systems have no filters to replace and large openings prevent clogging. Installations can be made for any capacity from 300 c.f.m. up, in arrangements of units to suit individual space and efficiency requirements. Buell engineers are at your service, wherever you are located.

DOUBLE EDDY says: *"You'll find the complete story of Buell's patented van Tongeren cyclone in* BULLETIN Q-9. *Write for it!"*

BUELL ENGINEERING CO., Inc., *Suite 5000, 12 Cedar Street, New York*
Sales Representatives in Principal Cities

buell
DUST RECOVERY SYSTEMS

CONSULT BUELL *First* IN DUST RECOVERY
for Chemical • Rock Product • Metallic • Food • Flue or any other dusts

(Midnight on the Albany Post Road, as the big Mack, "Honeygirl," rolls back onto the job out of an all night eatery. Sketched from life by Peter Helck.)

How can you beat it?

THE VERY FIRST MACK ever built stayed in service for 17 years. The ninth Mack, built in 1901, is still in running condition, although retired after a million miles of service. Right now, 7 of every 10 Mack trucks built 10 years ago are still on the job. How can you beat a record like that? Where else can you find trucks equal to these? The answer's simple —*you can't!* From one ton to forty-five tons, a Mack is your *best* truck in the end because a Mack is *more* truck to begin with!

Mack Trucks, Inc., Long Island City, N. Y.

Plants at Allentown, Pa., New Brunswick, N. J., Plainfield, N. J.;
Factory branches and dealers in all principal cities for service and parts.

Mack

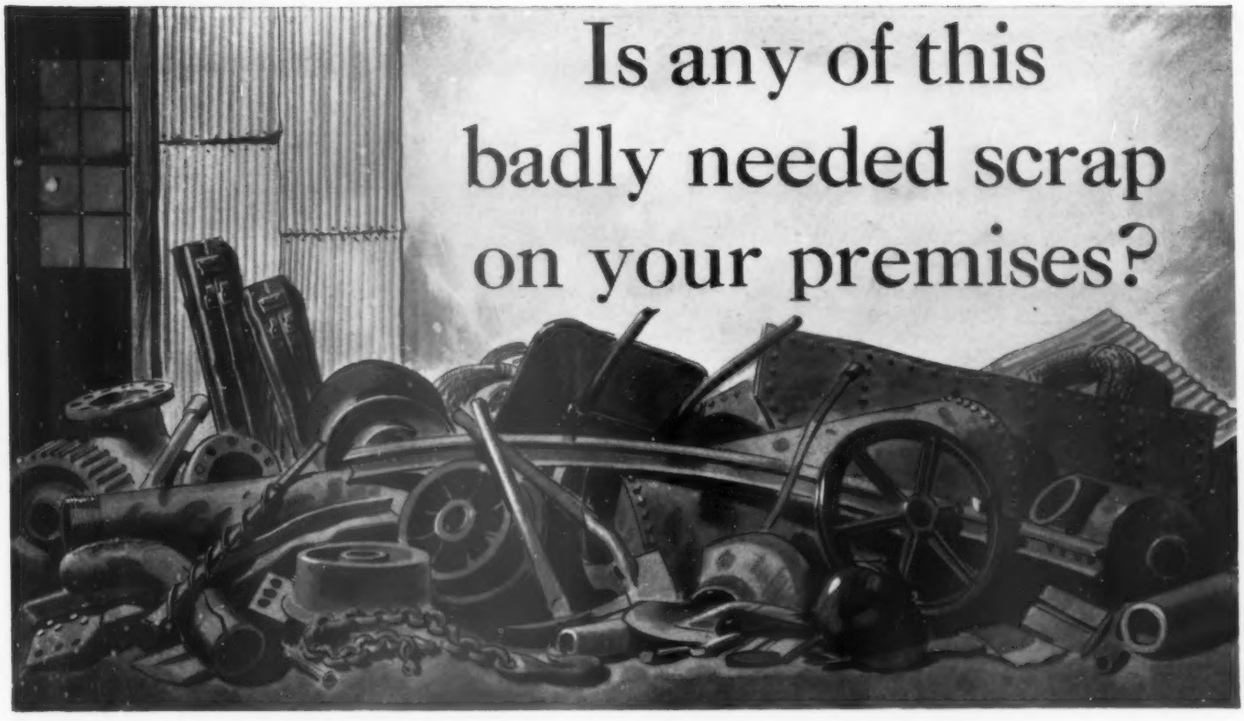
TRUCKS

FOR EVERY PURPOSE

ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY... IF YOU PLAN TO GET ONE, YOU'RE WISE!



WAR has a bottomless appetite for steel. This year our industry must produce even more steel than it did last year. This means not only more pig iron—but more scrap iron—at least six million extra tons of it!

Part of it may be on your premises!

Do your part in putting this scrap to work. Comb every square foot of ground, every building, every pit—any place where even the smallest piece of scrap iron may be lying idle. Look for both these types of scrap:

Dormant Scrap—Unused or abandoned equipment, broken or worn-out machine parts, old boilers, discarded wire rope, booms, buckets, hand tools, rails, spikes, steel ties, steel timbers, electrical equipment, engines, cars, trucks—you probably can add to this list yourself.

"Rainy-Day" Scrap—the hardest of all to part with. Includes obsolete machinery, unused metal buildings, stacks, outdated tools — idle now because they're being saved for possible use in some indefinite future emergency. The emergency is here! This metal should be scrapped, unless it can be reconditioned and put to work now.

How to organize your own scrap drive . . .

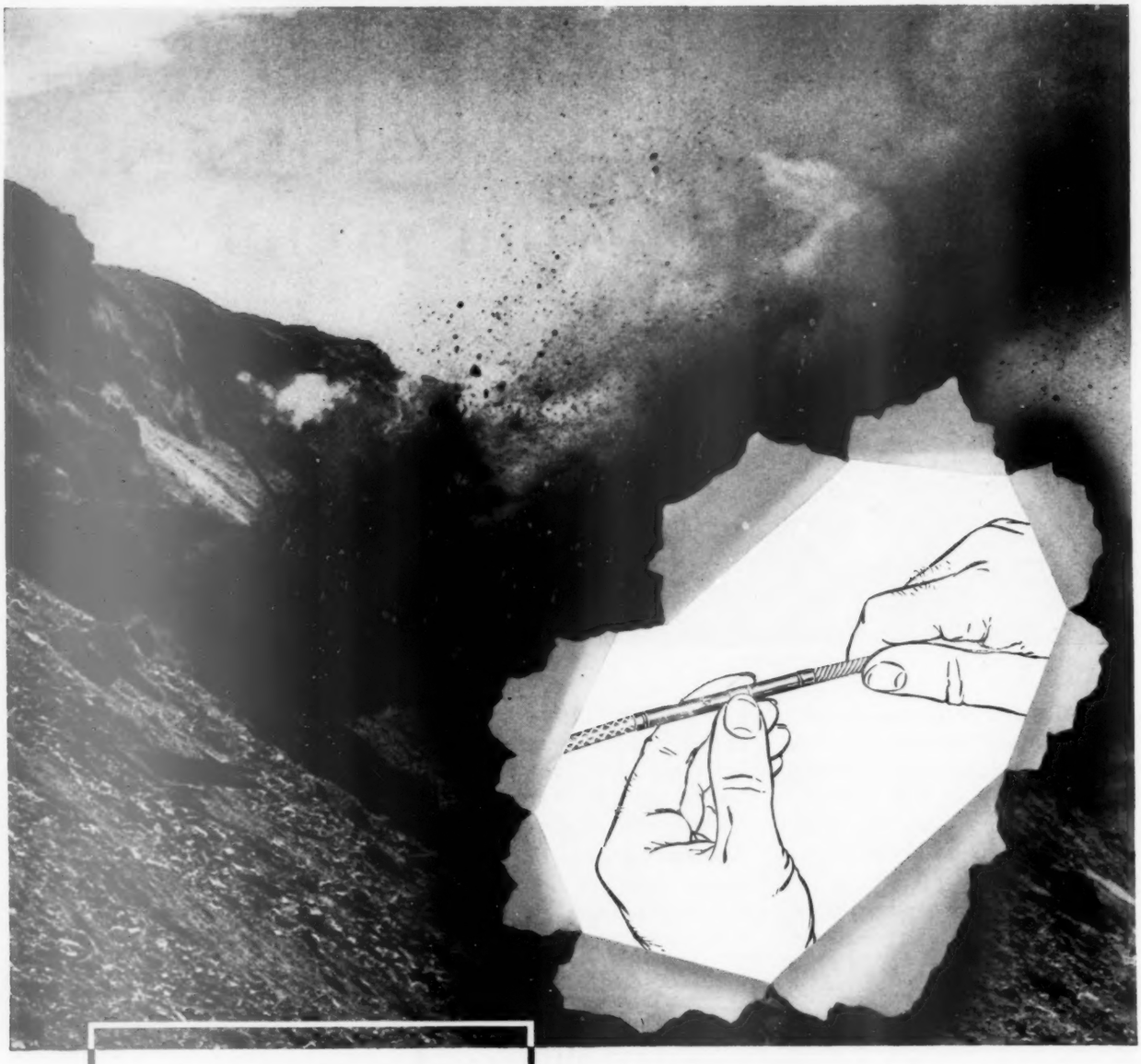
1. Put some one individual in charge of salvage in all departments of your business, and *give him the authority to act.*
2. Organize a forceful program, with the help of your local Industrial Salvage Committee.
3. Promote the drive to all employees. Dramatize it with posters, incentive systems. Make everyone "scrap conscious."
4. Emphasize *speed* and *continuous effort.* The quicker scrap gets to steel mills, the faster tanks and ships get into action. And it must *keep on coming,* as long as the war lasts.
5. For help or further information, contact your local W.P.B. office, or write to the Bureau of Industrial Conservation, War Production Board, Washington, District of Columbia.

★ *YOUR SCRAP IS WORTH ITS WEIGHT IN VICTORY* ★

By organizing a thoroughgoing salvage program now, you'll not only serve your country, but you'll also bring additional income to your business and pave the way for more economical post-war operation through the elimination of waste.

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*

UNITED STATES STEEL



Here's the only cap on the job!

When Primacord is the detonating agent, a single cap is the *only one* needed to set off an entire series of holes! It is attached after everything is ready—connections checked, equipment moved and men in a safe place.

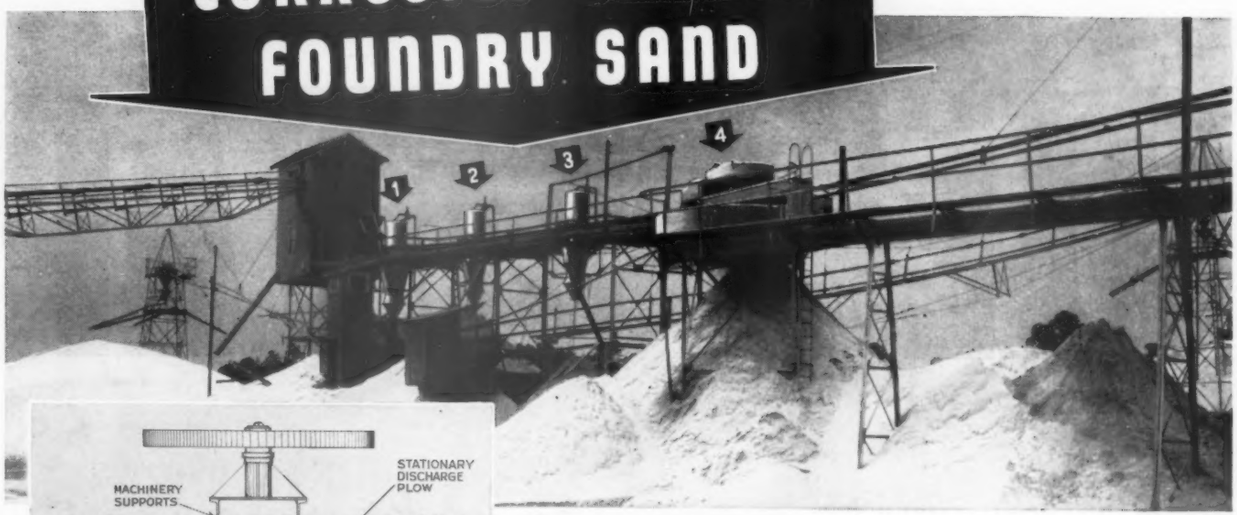
Insensitive to fire, friction and ordinary shock, Primacord must be *deliberately* detonated by fuse and cap or electric blasting cap. Once its tremendous explosive power has been released, it flashes through the entire hookup at 3.85 miles a second! . . . detonating cartridges in all holes almost instantaneously.

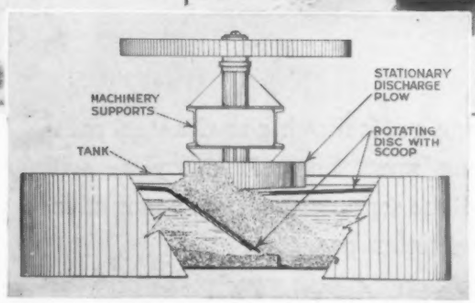
Primacord offers many advantages in safety and savings. Consider it for your blasting work, on large jobs or small.

THE ENSIGN-BICKFORD COMPANY
SIMSBURY, CONNECTICUT
Manufacturers of Safety Fuse since 1836

PRIMACORD-BICKFORD DETONATING FUSE

CORRECTLY GRADED FOUNDRY SAND





Produced By LINK-BELT CLASSIFIERS At Newest Whitehead Plants

THE ROTOSCOOP

is an unusually efficient, highly flexible, self-contained, compact dewatering unit for all types of sand. It provides a simple method of recovering special grain sizes usually lost in the overflow water. Delivers sand dry enough for loading on trucks or conveyors. Made in four sizes—15′, 12′, 9′ and 6′ diameters, with capacities 20 to 150 tons per hour.

THE SHAW CLASSIFIER

This unit will not only produce clean commercial sand but will also make such special grades as asphalt, filter, engine, gypsum and glass sands. Sand graded and cleaned by this unit will meet the most exacting specifications, particularly where removal of fines is important.

The newest sand preparation plants of the Whitehead Brothers Company at Dividing Creek, N. J., are outstanding examples of modern equipment doing a vital wartime job with precision and economy. The Number One plant, shown above, is capable of producing seven grades of sand to A.F.A. standards with three Link-Belt Shaw classifiers and a Link-Belt Rotoscoop. The 30-inch classifier (1 in illustration) can be adjusted to produce three grades, the 24-inch classifiers (2 and 3), and the 12-ft. Rotoscoop (4), produce one grade each, while the overflow from the Rotoscoop, held in a settling basin, recovers a very fine grade.

The Number Two plant uses two Link-Belt conical screens for scalping over-14-mesh material. In the two drying plants, Link-Belt vibrating screens receive sand discharged from the dryers and operate as stationary or vibrating screens.

LINK-BELT COMPANY

Chicago Indianapolis Philadelphia San Francisco Atlanta Dallas
Toronto. Offices, warehouses and distributors in all principal cities

8942

LINK-BELT
HANDLING AND PREPARATION EQUIPMENT

CONVEYORS • ELEVATORS • SCREENS • CLASSIFIERS • DRYERS • CONVEYOR AND DRIVE CHAINS • TRANSMISSION MACHINERY

Wanted urgently:

STEEL SCRAP

Shortage of steel scrap is threatening the war-production program.

If ships, planes, tanks and guns are to be produced in the volume needed to win the war, the country's steel-making facilities must operate at full capacity. But the plain truth is that the steel scrap to support continued capacity operations is not available, and not in sight.

United Effort Will Do the Job

Thanks to the construction of new blast furnaces, the deficiency is being partly made up by using more pig iron in steel-making. But tremendous quantities of additional scrap must be found within the crucial next few months.

Actually, many thousands of tons of steel scrap are potentially available *if only they can be gathered in*. This scrap, needed so urgently in the war effort, is scattered through the industrial plants, mines and railways, the farms and the homes of the nation. The problem is to collect it and get it moving to the steel mills. Everyone must help. If everyone will, there will be scrap to meet the needs of the war-production program.

Make a checkup in your plant or warehouse, or any other property you own or manage, and in your home.

Have any odds and ends of steel or iron that may be lying around collected. If you have any obsolete or idle equipment, machinery, or parts—anything that's made of iron or steel and isn't really needed—junk it, and get the scrap moving toward the steel mills.

How to Put Your Scrap to Work

Some iron or steel now lying rusting and forgotten around your property may help to save the lives of Americans in the battle areas. Gather up every possible bit of iron and steel scrap. Sell it to a local junk dealer, or get in touch with your local scrap salvage committee. Put your scrap to work for your country. It's needed, now!

BETHLEHEM STEEL COMPANY

THE BASIC LOADING TOOL

OF THE ECONOMY-MINDED SAND, GRAVEL OR STONE PRODUCER IS A MODERN PORTABLE

BUCKET LOADER

FOR SPEED IN HANDLING YARDAGE

FOR FLEXIBILITY OF USE

FOR INVESTMENT ECONOMY

FOR HOLDING DOWN OPERATING COSTS

Model 80 Loader with Special Avalanche Protection Plates

Haiss first developed the Bucket Loader as a first class, heavy-duty working tool 29 years ago . . . Through all the intervening time Haiss has sponsored improvements which have maintained the Loader in its position as the most economical of all types of equipment for loading trucks with loose materials . . . NOW, with highly mobile models on pneumatic tires, and creeper type machines up to 8 yds. a minute capacity, the Haiss Loader is still "out in front" where cost-per-yard-handled governs an operator's choice of equipment. Catalogs on request.

GEORGE HAISS MANUFACTURING CO., INC., 142nd ST. and RIDER AVE., NEW YORK CITY

HAISS QUALITY EQUIPMENT FOR 50 YEARS 1892 ★ 1942

HAISS

PORTABLE CONVEYORS ★ LOADERS ★ CLAMSHELL BUCKETS

KENNEDY STONE PREHEATER AND DEHEATER

Saves in Lime Production

40% SAVINGS IN FUEL
20% INCREASE IN CAPACITY

Plus
A Better Product!

It has been known for many years that better lime could be made in rotary kilns than in vertical kilns, but at a considerable handicap in price.

The great length of former types of rotary kilns, sometimes exceeding 400 feet, has failed to solve the problem of efficiently reducing the temperature of the exit gases.

Now, thanks to the KENNEDY principle of preheating and deheating, it is possible to make a high-grade lime of better quality than was formerly obtainable in long or short kilns at greatly reduced cost of production.

This principle permits the effective recovery and use of the exit gases, and in actual operation has shown 40% saving in fuel, with capacity increased 20% and more.

Short kilns employing the KENNEDY method also acquire an internal glaze which lessens the wear on kiln liners, lowers the power requirements, and reduces the formation of kiln rings.

Overburned and underburned lime is practically eliminated. Coal feed and lime calcination are switchboard controlled.

KENNEDY-VAN SAUN
Also Manufactures
CRUSHING, SCREENING, AND ELEVATING EQUIPMENT
Pneumatic Transport Systems
Pulverized Coal Equipment
and
STEAM GENERATORS
Write for one of our Engineers to call.

Ask for Bulletins 401 and 770

KENNEDY-VAN SAUN MFG. & ENG. CORP.
2 PARK AVE. **NEW YORK, N. Y.**

TODAY...

when equipment is labeled

DU PONT EXPLOSIVES CAN HELP YOU KEEP IT ON THE JOB

THERE'S no need to tell you how vital equipment is to the war effort, or how difficult it is to get replacement parts. You know that story better than we do.

We can, however, make three suggestions that our past experience in blasting has shown will help to conserve equipment and make it last longer. They are:

1—*Check up now on your METHOD OF OPERATION AND YOUR DRILLING so that the explosives you buy CAN do a complete and efficient job.*

2—*Be sure that the TYPES AND GRADES of explosives you use are suited to the conditions at your quarry.*

3—*Make certain that you are using the RIGHT AMOUNT of explosives to give you the proper fragmentation and placement of broken material.*

Today, especially, it pays to let explosives do as much of the job as possible. Remember, that a bit more explosives is less expensive and far more available than shovel teeth, truck bodies and many other replacement parts.

Du Pont representatives are fully qualified by years of practical blasting experience to advise you on all three of these suggestions. They can often show you the way to better blasting that will conserve equipment, time, money and manpower. E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington, Del.

DU PONT
REG. U.S. PAT. OFF.

EXPLOSIVES

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

You Win All the "Chips" with the Universal 27-G Porto-Plant!

The Efficient Screen Unit!

Double Deck Auxiliary Vibrating Screen shakes out chips which are conveyed to truck or stock pile—balance of crushed material is conveyed to main screen over mixing hopper.

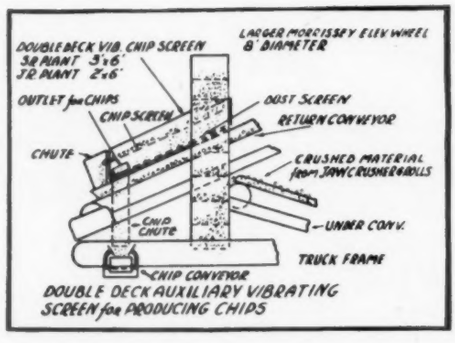
Where there's a big demand for chips for seal coating airports and roads—and there's a lot of it being done these days—the 27-G gives you the winning cards.

A Western state road commission* reported:

"We purchased a Universal 27-G Portable Gravel Plant in May, 1941 and our experience with it has been very favorable compared to similar size plants of other makes operating in this territory. The production capacity of the Universal seems much higher. *On a 5-day test run, July 1st to 5th, production of chips alone averaged 210 yards per 8 hours.* This is exceptional capacity and we can highly recommend this plant for highway work."

This bonafide letter from our files was passed on to us by a prospective purchaser who inquired of this user what they thought of their 27-G. Every contractor, pit owner and highway commission using them has similar praise for them! Send for Specification Sheet 27-G detailing the 4 sizes.

*Name on request.



A low cost chip screen on the return conveyor of this compact dual crushing plant provides a high chip yield — makes a separate screening operation unnecessary.

UNIVERSAL CRUSHER COMPANY
619 C Ave. West — Cedar Rapids, Iowa

UNIVERSAL

CRUSHERS, PULVERIZERS, COMPLETE PLANTS, SPREADEROLLERS, PORTABLE ASPHALT PLANTS

ROTARY KILNS

UNAX KILNS
FOR
LIME BURNING

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CEMENT

SINTERING KILNS
FOR ORES, PHOSPHATES, ETC.

F. L. SMIDTH & CO.

60 EAST 42ND STREET ENGINEERS NEW YORK, N. Y.

A LITTLE MORE POWDER may conserve IRREPLACEABLE EQUIPMENT

MORE than ever today, using a little more powder is not necessarily a waste. The accent is on production —and on getting the longest, most efficient life from irreplaceable equipment.

Maybe you don't even need *more* powder, but do need the *right* powder. This, conceivably, could mean even less powder. Check up on your methods.

Well-shot rock handles faster. Increases production. Saves repairs, and time lost in repairs—because it reduces strain on your equipment.

Atlas urges cooperation in tackling the job we all face. We are ready and willing to do our part. A card in the mail today will start an Atlas Representative on his way to do what he can to help.

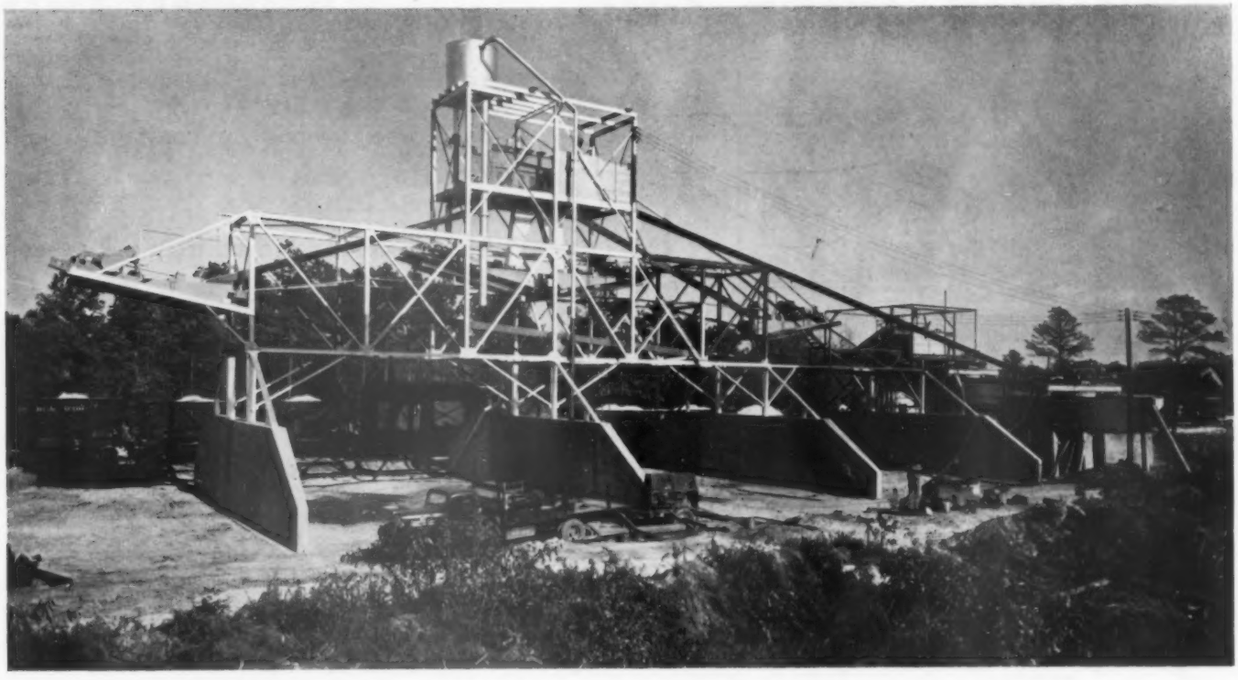
ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. · Offices in principal cities · Cable Address—Atpowco

High specification sand production

PLUS MAXIMUM FLEXIBILITY AND PRODUCT CONTROL



Whitehead Brothers Company plant, before walls were built, showing the equipment composing the Dorr System.

FOUR STEPS IN THIS DORR SYSTEM

STEP 1
Desilting and Clay Removal in a Dorr Hydroseparator, in background.

STEP 2
Fractionation into 6 Sized Products in a Fahrenwald Sizer, on top of steel structure.

STEP 3
Washing and Grading Products Nos. 1-4 Incl. in four Dorr Classifiers, mounted on steel structure, discharging into four bins below.

STEP 4
Washing and Grading Product No. 5—Fine Core Sand in a Dorr Thickener and a Dorr Classifier in background.

● This newest Dorr Sand Preparation System of Whitehead Brothers Company at Dividing Creek, N. J., produces 40 to 50 tons an hour of high grade moulding sand. Five washed and closely sized products are made, ranging upwards in size from fine core sand.

Four steps are taken in sequence as noted at the left. Positive mechanical adjustment is provided at each unit. Result—maximum flexibility of operation—maximum control of the mesh and distribution of sizes in the five finished products.

The Dorr Sand Preparation System is equally applicable to the washing and sizing of other types of sand—concrete, asphalt, filter and special purpose sands. A sand deposit deficient in certain essential grain sizes no longer means an inability to make top specification products.

A Dorr engineer will gladly explain the Dorr System and what it will do under your own conditions.

DORRCO

THE DORR COMPANY, INC., ENGINEERS

NEW YORK, N. Y. . . . 570 LEXINGTON AVE.
ATLANTA, GA. . . . CANDLER BUILDING
TORONTO, ONT. . . . 80 RICHMOND ST.W.
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RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.

SUGAR PROCESSING
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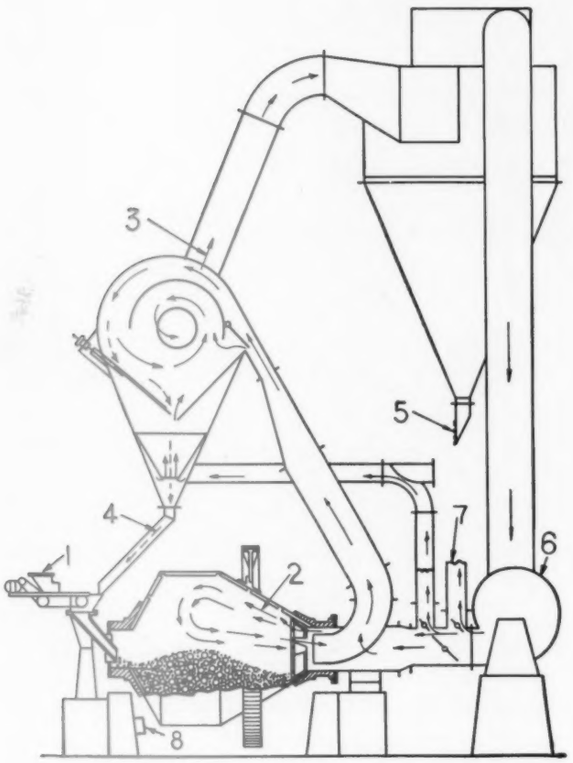
570 LEXINGTON AVE., NEW YORK

DORR

RESEARCH ENGINEERING EQUIPMENT

ADDRESS ALL INQUIRIES TO OUR NEAREST OFFICE

FOR FINE GRINDING
USE THE
CONICAL MILL AND AIR CLASSIFIER



1. Material fed to mill by constant weight Feeder.
2. Finished material removed from mill as soon as produced.
3. Separations: 20 mesh to as fine as 99.9% minus 325 mesh.
4. Oversize returned to feed end of mill.
5. Product discharged at any elevation — no elevator required.
6. Fan returns clean air to mill.
7. Small amount of air and vapor vented.
8. "Electric Ear" Sound Control Unit maintains maximum capacity.

No Dust Hazard — System Under Vacuum.

Maximum Efficiency—Ground Material Is Removed from Mill as Rapidly as Produced Permitting Grinding Media to Act Directly Upon Unground Particles.

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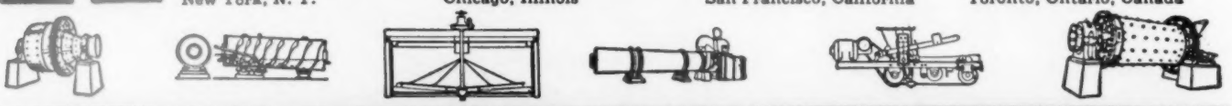
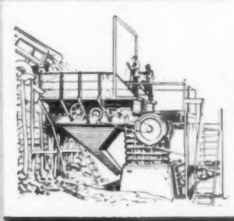
COMPANY, INCORPORATED - YORK, PENNSYLVANIA

122 East 42nd Street, New York, N. Y.
205 West Wacker Drive, Chicago, Illinois
501 Howard Street, San Francisco, California
200 Bay St., Toronto, Ontario, Canada



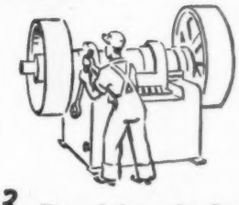
CONICAL MILLS | COUNTER CURRENT CLASSIFIERS | THICKENERS CLARIFIERS | RUGGLES-COLES DRYERS | CONSTANT WEIGHT FEEDERS | TUBE ROD AND BATCH MILLS

Five WAYS TO MAKE YOUR JAW CRUSHER LAST LONGER . . . AND SERVE BETTER



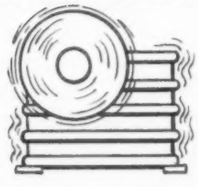
1. Lubricate regularly and often. Keep oil clean. A little oil every day is better than a lot of oil once a week. It flushes out the oil seals and keeps the bearings clean. Grease both ends of the toggle plates, too.

2. Reverse jaws when worn smooth at bottom and replace jaws when worn at top and bottom. Corrugated jaws crush easier and have more capacity. Neglected jaws can cause costly breakdowns.



3. Keep bolts tight. Loose bolts cause excessive wear, misalignment and may injure the crusher.

4. Feed rocks that the jaw plates can grab. Rocks that are too big plug the crusher, delay production, and may damage the crusher.



5. Don't run crusher faster than rated speed. Increased speed does not increase production and does cause excessive wear.

If you own a Pioneer Jaw Crusher, we can give you prompt shipment on genuine Pioneer Replacement Parts.

Pioneer
ENGINEERING WORKS
Minneapolis, Minnesota, U.S.A.

How the IMP MILL ... SIMPLIFIES PRODUCTION

CLAY { Drying / Grinding / Refining } one operation

SINCE 1887

Complicated processes . . . often requiring several units of equipment . . . can be handled in *one* operation by the RAYMOND Imp Mill.

Important clay products plants are using the Imp Mill equipped with double-whizzer separator and provided with a drying system *for drying and pulverizing clay.*

The mill receives the material with initial moisture as high as 27%. This is reduced to not more than 5% residual moisture, and the clay ground to a fineness of 99% or better passing 80-mesh. Other grades are produced at 99% minus 300-mesh, the classification being readily controlled with the whizzer separator.

Impurities are automatically rejected by a throw-out attachment, insuring a uniform grade of finished material.

Other products such as gypsum, limestone, oil-well drilling mud and various moisture-laden materials can be handled economically by this method. *Write for further details.*

RAYMOND PULVERIZER DIVISION
COMBUSTION ENGINEERING COMPANY, INC.
1321 North Branch Street CHICAGO
Sales Offices in Principal Cities • • • In Canada: Combustion Engineering Corporation, Ltd., Montreal

PIT AND QUARRY

Vol. 35 SEPTEMBER, 1942 No. 3

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TAKE *Extra* CARE of your CONVEYORS

EVERY PART of your materials handling equipment is made of critical materials . . . the metal in the idlers . . . the rubber and duck in the belting . . . even the bearings which enable the equipment to run smoothly and move quickly. So take *extra* care of your Conveyors.

See that all the idlers are in good operating condition . . . that they are lubricated properly and adequately. When lubricating Robins Idlers (which can be done from either side, due to patented design) it is easy to tell when enough grease has been added; it begins to escape through the far-side fitting.

See that the belt runs true; a crooked-running belt may cause not only spillage but also excessive wear. If your belting has a tendency towards side-sway, Robins Training Idlers will keep it straight in both carrying and return strands.

Where very heavy and lumpy material is handled, the excessive belt wear or actual damage imposed at loading points can be greatly reduced by installing Robins Rubberdisc Cushion Troughing Idlers . . . giving you longer belt-life.

Examine your conveyors critically. See whether you are doing justice to them, to yourself and to the conservation program by assuring that they are in condition to render maximum service in these times when maximum production is so vital.

If you need assistance or advice on the proper care of materials handling equipment, ask Robins engineers. Their knowledge is at your disposal wholly without obligation.

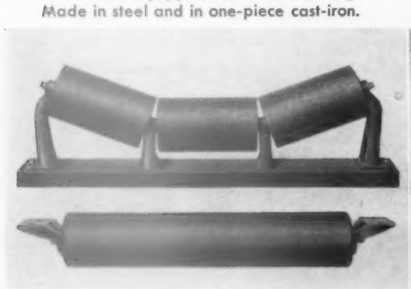
ROBINS

CONVEYING BELT COMPANY

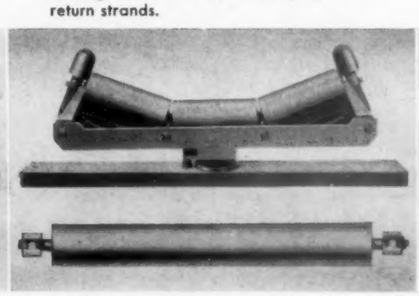
PASSAIC • N. J.

For Material Aid in Materials Handling . . . ***It's ROBINS***

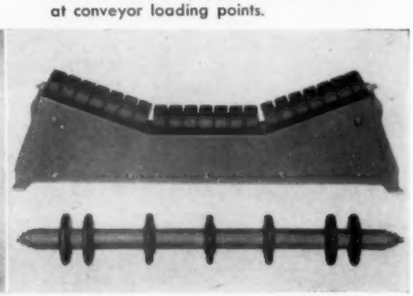
Robins Roller Bearing Troughing Idlers are Timken equipped for smooth running. Made in steel and in one-piece cast-iron.



Robins Training Idlers prevent crooked running belts in both carrying and return strands.



Robins Rubberdisc Cushion Troughing Idlers (Timken equipped) absorb shock at conveyor loading points.



PIT AND QUARRY

CHICAGO SEPTEMBER, 1942

Allocation of Cement Is Expected; Limit Output to 3 Grades

The rapidly progressing shortage of materials has caught up with cement during the last few weeks and industry sources would not be surprised if the War Production Board had to take over the allocation of all cement within the next thirty days.

Only a few weeks ago no one in the industry considered a scarcity of cement at all likely and W.P.B. statisticians revised downward previous estimates of requirements which had been unrealistically high. It now appears that actual demand this year, while far below the former W.P.B. estimate, will be well in excess of the recently given figure, the *New York Journal of Commerce* points out.

The rapid increase in demand is said to be the result of large requirements for military bases and war production plants which have been redesigned so as to save steel. These changes in design involve the use of far greater amounts of cement than had previously been expected.

There is no shortage in New England and the Middle Atlantic States, where 36 per cent. of the industry's capacity is located, it was learned. In all other parts of the country, however, the demand during the last few weeks and for shipment in the next few months has been so large that plants can not keep up with it. A "freeze" order is already in effect in at least three states—Texas, Oklahoma and Nebraska.

So far as production is concerned, the industry does not expect much increase from the W.P.B. Order L-179 which limits output to three grades. (See page 46 for full text of order). It is conceded that, theoretically, the reduction in the number of types should result in larger volume but it is pointed out that the "fancy cements" eliminated by the order were not manufactured in any large quantity outside the northeastern area where no shortage exists. The only substantial users of special cements in other districts were a number of government projects which are specifically excluded from application of the order.

Some immediate relief is expected, however, as a result of another provision of the order which eliminates the separation of cement for specific customers in special bins. This will release substantial inventories for early shipment, possibly as much as 8,000,000 barrels. For it is estimated that under the rule mill stocks can be reduced to 12,000,000 barrels without interfering with operations. Latest statistics showed these stocks at 22,654,000 barrels on June 30 and the depletion during July may have amounted to about 2,500,000 barrels.

Coming Events

January 25-27, 1943—Cleveland, Ohio. Annual convention, National Crushed Stone Association, Hollenden Hotel. (No machinery exhibit.)

January 27-29, 1943—Cleveland, Ohio. Annual convention, National Sand & Gravel Association, Statler Hotel. (No machinery exhibit.)

January 27-29, 1943—Cleveland, Ohio. Annual convention, National Ready Mixed Concrete Association, Statler Hotel. (No machinery exhibit.)

Safety Congress to be Held in Three Chicago Hotels

The date and location of the 31st National Safety Congress and Exposition have been changed because the government has taken over for military purposes the Stevens and Congress Hotels in Chicago, where the congress originally was to have been held.

The 1942 congress will be held October 27, 28, 29. It will be housed in three big Chicago hotels —the Sherman, the La Salle and the Morrison. Convention headquarters will be in the Sherman.

These changes will in no way affect the size, scope and importance of the congress. There will be 200 sessions with 500 program participants.

Trap-Rock Producer to Work Mica Deposits

The New Haven Trap Rock Company of New Haven, Connecticut has leased mica deposits in the Meshomasic State Forest, plans to re-open an abandoned mine on the property and produce mica, now a scarce and essential war material.

Under the terms of the lease the New Haven concern will pay the state of Connecticut 5 per cent. of the selling price for all mica produced on the property.

Georgia Firm Acquires Alabama Lime Plant

Dermot Shemwell & Sons of Albany, Georgia have acquired the plant and quarries of the Meadwell Lime Company at Opalika, Alabama.

The operation has a capacity of about 100 tons of agricultural stone daily and holds an AAA contract covering 24 counties in southern Alabama and Georgia.

Illinois Farmers Use Record Tonnage of Soil Limestone

The use of agricultural limestone to improve the farm lands of Illinois established a new record in 1941, the State Geological Survey reports. More than 2,500,000 tons was used throughout the state, every county participating. This is evidence of the growing recognition of the importance of preserving and increasing the fertility of the soils, and it is to be expected that this point of view will be emphasized even more by agriculturalists, especially during the present war when greater quantities of foodstuffs must be raised.

This use of limestone to build up the soils of Illinois to new capacities of productiveness has been aided by various state and federal agencies and farm organizations. Through this program farmers are enabled to use part of the allowance they receive for participation in its coöperative planning to obtain limestone and other soil-building material to improve their land. They are encouraged to do this not only in the spring but throughout the year, and are given expert advice in the scientific application of this material to secure the maximum benefits from its use.

During 1941 agricultural limestone was produced in 50 of the 102 counties of the state.

The increase in the use of agricultural limestone during 1941 was especially pronounced in the southern counties of the state, where formerly its use has been less extensive.

Among the fundamental purposes of the agricultural conservation program for 1942 the first is "to save the soil and its fertility, and to increase the production of the commodities needed for national defense." The AAA program for the north-central region provides for payments to farmers to help them pay at least part of the cost of carrying out these purposes by diverting acreage from soil-depleting crops and by adopting soil-building practices.

The program provides that a soil-building allowance for carrying out approved soil-building practices will be paid at the rate of

"(a) 70 cents per acre of crop land in the farm in excess of the special crop acreages for which payments are computed.

(b) $2.00 per acre of commercial orchards on the farm.

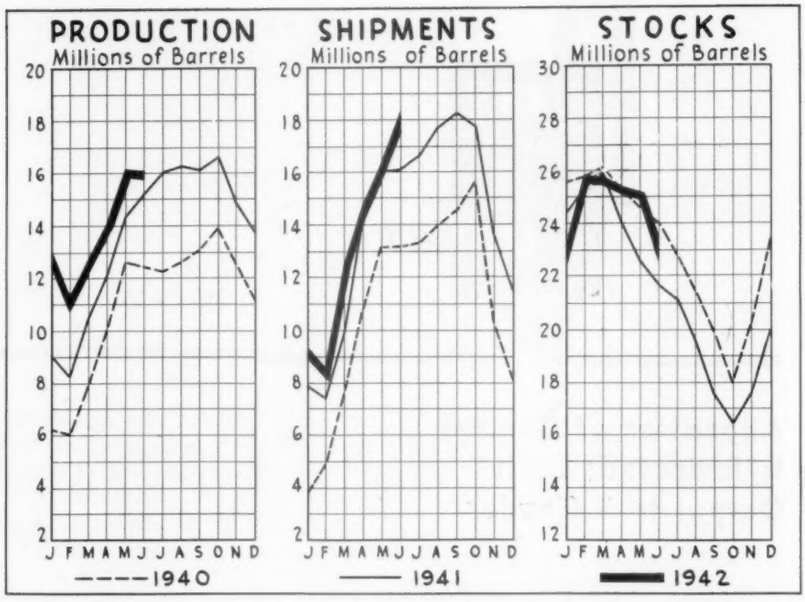
(c) A county flat rate per acre of non-crop open pasture land in the farm, plus 90 cents for each animal unit of grazing capacity.

(d) $1.00 for each acre of commercial vegetables normally grown on the farm."

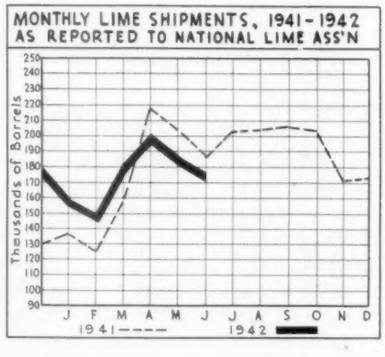
"Application of ground limestone and other approved fertilizer materials to old stands or to new seedings of biennial or perennial legumes, perennial grasses, etc., will qualify as soil-building practice.

"The ground limestone must contain calcium and magnesium carbonates equivalent to not less than 80 per cent. of calcium carbonate. It must not be coarser than that obtained by grinding calcareous or dolomitic limestone, with all finer particles obtained in the grinding process included, so that (1) not less than 90 per cent. will pass through an 8-mesh sieve; or (2) not less than 80 per cent. will pass through an 8-mesh sieve and the multiplication of the percentage of calcium carbonate (equivalent) times the percentage of ground limestone that will pass through an 8-mesh sieve equals not less than 0.7200.

"The application of ground limestone" costs from $1.50 to $2.00 per ton.



The Portland-cement industry in June, 1942, produced 16,022,000 barrels, shipped 18,250,000 barrels, and had in stock at the end of the month 22,654,000 barrels of cement, according to the Bureau of Mines. Production and shipments of cement in June, 1942, showed increases of 5.2 and 13.3 per cent. respectively, as compared with June, 1941. Portland-cement stocks at mills were 3.6 per cent. higher than a year ago.



According to data collected by the National Lime Association, 70 companies in June, 1942, shipped 171,207 tons of lime (113,817 quicklime; 57,390 hydrate). Reporting companies represent 47.3 per cent. of the association's total capacity of record. Based on PIT AND QUARRY'S estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 425,000 tons. Shipments of lime by users for June, 1942, were:

Use	Quicklime (tons)	Hydrate (tons)
Agricultural	1,238	11,360
Building	11,817	23,080
Chemical	100,762	22,950
Total	113,817	57,390

Paid Circulation of Pit & Quarry Among Nonmetallic - Mineral Producers in Recent Years:

CONTINUOUSLY FOR 25 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

1942	(May)	6,513
1941	(November)	6,179
	(May)	5,945
1940	(November)	5,397
	(May)	5,037
1939	(November)	4,641
	(May)	4,617
1938	(November)	4,496
	(May)	4,366
1937	(November)	3,971
	(May)	3,772
1936	(November)	3,654

78% increase in 5½ Years

Name 18 Executives of Cement Firms to Consult with OPA

Eighteen executives in the cement industry were appointed July 30 to serve on an industry advisory committee on Portland cement for the Office of Price Administration.

Sales and deliveries of Portland cement are subject to the provisions of the general maximum price regulation and the function of the advisory committee will be to advise and consult with the O. P. A. with respect to the regulation as it affects the industry.

The committee follows:

M. Moss Alexander, president, Missouri Portland Cement Company; Garner A. Beckett, president, Riverside Cement Company; John C. Bowen, vice-president, Lehigh Portland Cement Company; F. M. Coogan, vice-president, Alpha Portland Cement Company; P. C. Dawson, vice-president and general manager, Medusa Portland Cement Company; B. W. Druckenmiller, vice-president and general manager, Pennsylvania-Dixie Cement Corporation; W. D. Elcock, president and general manager, Southern States Portland Cement Company; Henry J. Kaiser, president, Permanente Corporation; E. P. Lucas, president, Superior Portland Cement Company; J. F. Neylan, general sales manager, Lone Star Cement Corporation; George H. Reiter, vice-president, Universal Atlas Cement Corporation; W. C. Russell, vice-president and general manager, Peerless Cement Corporation; Harold M. Scott, president, Keystone Portland Cement Company; Smith W. Storey, president, Consolidated Cement Corporation; L. T. Sunderland, president, Ash Grove Lime & Portland Cement Company; R. H. Titsworth, president, Glens Falls Portland Cement Corporation; H. O. Warner, vice-president and general sales manager, Ideal Cement Company; Gus S. Wortham, president, Longhorn Portland Cement Company.

To Construct 13 Barges of Concrete in West

Thirteen huge concrete barges are scheduled for construction in gigantic basins near the San Francisco Airport.

A contract has been awarded to Barrett & Hilp, general contractors, by the Maritime Commission, and power shovels are busy excavating the huge basins in which the barges will be built.

The concrete vessels will be floated, rather than launched, when water is let into the basins from the higher level of the bay. The plan is expected to save time on a job where speed is essential.

Quarters for a crew of six men will be carried in each of the barges and the hold will be divided into ten compartments, it was said. Lightweight aggregates will be used to reduce weight.

Three Operators Dredge Materials for Army Job

There is great activity these days on the Ohio River front near the ferry landing at sleepy Uniontown, Kentucky.

Three concerns—the Smiley Sand & Gravel Company, the Union Sand & Gravel Company, and the Nugent Sand Company—are dredging sand and gravel from the bed of the river and transporting it by truck to Camp Breckinridge.

There are 30 trucks engaged in hauling the materials. Each truck hauls an average of 7 tons each load and delivers an average of 15 loads a day, making 105 tons delivered daily by an individual truck. Multiplied by 30 this makes a grand total of 3,150 tons transported by the trucks each day, including Sundays.

St. Louis Firm Takes Over Plant in Kansas

The Kirkwood Sand & Gravel Company of St. Louis has taken over the pit and plant formerly operated by the Independent Sand & Gravel Company at Sterling, Kansas.

New washing and conveying equipment is to be installed and a Sauerman cableway will be placed in service to augment an existing dredge.

Western Indiana Firm Enlarging Operations

The Western Indiana Gravel Company of La Fayette, Indiana has purchased and is now operating the sand-and-gravel plant formerly operated by the Montezuma Gravel Company at Montezuma, Indiana. William Bailey is superintendent.

The company also expects to place its Terre Haute plant in operation next year with M. N. Neville in charge.

Financial Reports Reflect Increased Industry Operation

The Pennsylvania-Dixie Cement Corporation and subsidiaries report for the 12 months ended June 30, 1942, net profit of $1,112,575 after provision of $699,750 for federal income and excess profits taxes and a reserve of $440,000 for contingencies.

This is equal to $9.18 a share on 121,200 shares of $7 convertible preferred on which unpaid dividend accumulations amounted to $83 a share on June 30, 1942.

For the 12 months ended June 30, 1941 the company reported net profit of $1,057,178, equal to $8.72 a share on $7 preferred when federal taxes on income were $473,250.

* * *

The Kansas City Crushed Stone Company had net profit after taxes of $29,350 in 1941, thus eliminating the deficit surplus which existed at the end of 1940. Total income was $110,822; expenses were $68,653. Current assets on December 31 were $93,517; current liabilities, $22,643.

During the year the company made a profit of $13,874 in the retirement of some of its preferred stock, the credit going to surplus.

* * *

The North American Cement Corportation reports for the 12 months ended June 30, 1942, net profit of $150,403 after taxes, depreciation, depletion and interest, but before profit on bonds purchased.

This compares with a loss of $127,382 for the 12 months ended June 30, 1941.

* * *

Consolidated net income of Johns-Manville Corporation and subsidiary companies for the second quarter of 1942 was $1,103,054, compared to $1,457,213 for the corresponding period last year. Earnings per share of common stock, after preferred dividends, were $1.24 for the quarter as against $1.62 per share last year, he said.

Pine Bluff Producer Gets Jetty Contract

The Pine Bluff Sand & Gravel Company at Pine Bluff, Arkansas, has been awarded the contract for the construction of bank protection on the Red River at Garland City in that state. The work will cost $64,000.

Urges Equipment be Reclaimed for Use If at All Possible

Secretary of the Interior Harold L. Ickes has announced that he has instructed all field engineers of the Bureau of Mines to prevent, if possible, the scrapping of usable second-hand mining equipment in the current salvage drive.

Reports have reached his office, he said, that valuable and non-replaceable mining machinery in workable or repairable condition was being picked up and destroyed for scrap in the salvage drive. In addition, the reports indicated, ore reduction and treatment machinery, such as kiln equipment, crushers, ball-mills, etc., are being scrapped.

"Every piece of usable or repairable mining equipment is absolutely vital," Secretary Ickes said, "because it can not be replaced. It would be a grave mistake to take this class of material for destruction or scrap.

"The Department of the Interior is counting on putting to use every second-hand piece of mining machinery in its program to increase vital mineral production. Now reports reach us that misguided enthusiasts are buying up such equipment for scrap.

"Such inconsiderate acts must stop at once," he told Bureau of Mines field engineers. "Every piece of equipment that is usable must be protected and put to work. Do not let any usable or repairable equipment in your districts be picked up for scrap."

Secretary Ickes asked War Production Board officials to instruct their salvage-drive representatives to protect all usable or repairable mining equipment from scrapping. Destruction of such machinery, he said, would spell the end of development and expansion of small mines with devastating effect on mineral production.

Wire Diameters for Screens Standardized

Printed copies of Simplified Practice Recommendation R147-42, *Wire Diameters for Mineral Aggregate Production Screens*, are now available, according to an announcement of the Division of Simplified Practice, National Bureau of Standards.

This recommendation lists the wire sizes recommended for the construction of mineral aggregate production screens of various sizes of clear square opening. The original recommendation, drafted by a general conference of all interests in 1932, reduced the variety of wire diameters for openings ranging from ⅛ to 3 inches by approximately 75 per cent. of their former number. The recommendation was reaffirmed in 1936, and again in 1940. As a result of a recent review of the recommendation, wire diameters for screens with clear square openings of 3½ and 4 inches were added to the schedule. This adds only one new wire diameter, *i.e.*, one inch, to those already listed.

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents each. A discount of 25 per cent. on orders of 100 or more copies is available to those desiring to purchase a supply of this publication for business purposes.

Map of Rationed Gasoline Areas

This map showing the eastern gasoline rationed area was released August 5 by the Office of Price Administration. The line on the right, extending from Lake Ontario to the Gulf defines the seaboard section in which the coupon plan is now in operation. The seven western New York counties around Buffalo, where gasoline deliveries to dealers are now curtailed 33⅓ per cent. also came under the rationing program on August 22. The line on the left which runs along the boundary of western Pennsylvania and roughly parallels the rationing boundary, outlines the buffer zone in which deliveries of gasoline to dealers are curtailed 25 per cent.

New Building Record

The volume of new construction in the second quarter of 1942 was $3,297,000,000 the Department of Commerce has announced.

This was 25 per cent. greater than the preceding quarter and 28 per cent. above the same period last year. The record level was reached in spite of a sharp contraseasonal decline in private construction. Public war construction, one and a half times as large as in the previous quarter and almost three times as large as in the same period a year ago, accounted for the rise.

Gypsum Industry Feels Effect of Restrictions

The adverse effects of the recent "stop-construction" order of the War Production Board reached the gypsum industry much more quickly than had been expected and resulted in a marked reduction of over-all activity during the second quarter of 1942.

This first falling-off in general activity from the high levels that had persisted throughout the industry for the past several years is measured best by the 19-per cent. decline in kettle and kiln output of calcined gypsum. Domestic crude production reported to the Bureau of Mines was slightly higher than in the April-June period of 1941; the increased output probably was caused by much heavier shipments of domestic gypsum to tidewater calcining-plants cut off from imported supplies and also by efforts to enlarge crude stocks at the mines so as to forestall prospective curtailment in production by future shortages of labor or equipment.

Demand for gypsum products as indicated by sales volumes reported to the Bureau of Mines for the second quarter was irregular and by comparison with similar data of 1941 generally was higher for uncalcined and industrial products, lower for building plasters, lath and tile and higher for wallboard and sheathing.

The Fischer Lime & Cement Company of Memphis is flying one of the "Minute Man" flags awarded by the U. S. Treasury Department to firms in which 90 per cent. or more of the employees are buying War Bonds through the salary-deduction plan.

Cruz Azul (Mexico) Will Open Another New Cement Plant

The cement factory Cruz Azul at Jasso, Hidalgo, Mexico, is one of the oldest and biggest in Mexico. In 1930, after several changes in administration, the plant was taken over by a coöperative composed of its employees. This coöperative has been operating on a sound basis ever since, producing about 280 tons of Portland cement per day and supplying part of the market of central Mexico, together with the biggest plant Cemento Tolteca S. A. For the northern part of the republic, the demand is being covered chiefly by the firm Cementos Mexicanos. These three big plants, together with a few smaller ones, have a total production of about 1,500 tons per day. The southern part of Mexico is still lacking an adequate cement plant of its own.

To fill this gap the Cruz Azul is now installing a sister plant at Estacion de Lagunas, State of Oaxaca, at the Isthmus of Tehuantepec, which will supply the south of Mexico. The raw material is right at hand. The equipment being installed comes partly from the plant at Jasso —where there was more machinery than necessary—and part has been purchased new from the United States on an A-6 priority. About half of the new equipment has arrived at Lagunas and is being installed. The main parts of this equipment are a kiln, several Compeb mills and a movable grate-type cooler, to handle 25 barrels per hour, from Fuller. When completed, the new plant will employ about 150 workers and produce 100 tons of cement per day, working in three shifts. The general manager is Arcadio Hernandez. The plant is to be completed by the end of the year. Even now the company is receiving orders from several Latin American countries.

While cement is now subject to some price speculation, as a consequence of the growing construction activities in Mexico and recently because of the war situation, Cruz Azul has reportedly not raised prices since 1931 and still sells a ton of cement for 50 pesos ($10.30).

As to cement production in Mexico generally, several new plants are now under consideration, including a plant at Guadalajara, capital of the State of Jalisco, and another at Mazatlan, State of Sinaloa, on the Pacific coast.

Aerial view of the Jasso cement plant of Cruz Azul, Mexican producer.

Gypsum-Price Formula for Federal Projects

The National Gypsum Company of Buffalo, New York, manufacturer of gypsum board and fiber insulation board, has been provided with a formula for establishing maximum prices for certain new wallboards which will be used in constructing exterior and interior walls and buildings for the United States Army, the Office of Price Administration announced today.

The pricing formula, which covers several commodities, is contained in Order No. 26 under Section 3 (b) of the General Maximum Price Regulation. The prices of National Gypsum Company's new products are based on the relationship between the costs and the prices of the gypsum board and fiber insulation board hitherto manufactured by the National Gypsum Company which form component parts of the new products.

The prices of the items entering into the new production are established by the General Maximum Price Regulation and the prices for new products will be at the level of the prices in existence during March, 1942.

The order provides that all discounts and freight equalization practices applicable to the sales of the peace-time commodities shall be applicable to the sales of the new materials.

Prices arrived at in accordance with the formula must be reported to the Office of Price Administration. Provision is made for amendment of the order and adjustment of the prices so that, if the prices are not deemed proper, the formula may be changed to provide for a proper price.

Asks Hopper Cars Be Reserved for Coal

With a view to easing the growing tightness in the supply of hopper-type freight cars used for hauling coal, Joseph B. Eastman, Director of Defense Transportation, has urged shippers to order gondola cars or other types of equipment for the shipment of the various bulk materials not requiring the use of hopper cars.

In sections of the country where a surplus of box cars exists, even these might be used, provided such equipment could accommodate the shipment, Mr. Eastman said.

Mr. Eastman commended the recent action of the executive committee of the Mid-West Shippers' Advisory Board, in Chicago, which adopted a resolution asking all shippers, including government agencies, to give particular attention to the coal-car situation when ordering open-top freight cars for loading and to specify optional types of equipment.

Opens Molding-Sand Plant in Illinois

A new molding-sand plant is being erected near Byron, Illinois, by the Manley Sand Company of Roscoe, Illinois.

How Truck Owners in Britain Keep Equipment Running

Great Britain has had nearly three years of war, but most or her trucks and buses are still running. Despite far less ample supplies of spare parts than operators had at their command in this country when the United States entered the war, and despite the fact that many vehicles and stores of spare parts were destroyed in air raids, Britain has kept her highway transport facilities in operation.

In the belief that some knowledge of how this has been accomplished would be of real value to truck and bus operators in the United States, the Transportation and Maintenance Activity Section of the Society of Automotive Engineers (S.A.E.) made a study of maintenance methods being used in England.

This study was made to further the preventive maintenance program of the Office of Defense Transportation and has been approved and distributed by the Vehicle Maintenance Section of the ODT's Division of Motor Transport.

The SAE found that, as might be expected, the British have developed many methods for reclaiming and rebuilding available used parts in order to make the most of existing equipment. The salient features of preventive maintenance as used in England follow:

Pistons.—Pistons are removed at predetermined periods for inspection. Worn ring grooves are turned out for over-size width piston rings. Worn or broken ring lands including top land in aluminum pistons are welded solid and re-turned. Skirts are expanded by any one of several American processes. Tin plating has been used to prevent seizure of cast-iron pistons. Badly-worn piston-pin holes have been bored out and fitted with phosphor-bronze bushings and, in some cases, pins have been oversized by chromium plating.

Crankshafts. — Both chromium plating and metal spraying have been used. There is one complaint that journals are not reliable to less than .002 inch tolerance which presents difficulties in line boring. This would indicate that British machining is not up to American standards. Some operators use standard undersizes before building up the crankshaft while others keep the shaft to standard to eliminate the necessity for several undersize bearings.

Camshafts.—One firm reports that it applies wear-resisting alloys to worn cams and then grinds them with a machine of its own design.

Valves and Valve Mechanism.—Large valves have been turned down and used to replace those of smaller size. In some cases valve stems have been brought up to standard size by chromium plating and, in others, the valve guides have been filled with bronze welding rod and rebored. Some valves have been refaced with wear-resisting alloys. Similar treatment has been successful on valve tappets. Chromium plating has also been used on tappets. Chrome plating has also been found useful on rocker-arm shafts.

Clutches.—Clutch faces on the flywheel have been repaired by alloy deposition. There is a record of one operator straightening buckled clutch plates by heating them with a gas ring and subjecting them to pressure between two cast-iron plates. Chromium plating has been used successfully on clutch disks. Electric welding has proved successful on toggle levers. Nickel and chromium plating, as well as deposition by electric welding, has been successful on a number of transmission shafts and other parts such as shifter forks.

Differential.—Metal spraying has been used to rebuild differential yokes at the surface that holds the differential bearings. This is difficult to machine so that the ring gear remains square with the carrier, but it has been done. Some firms have been successful in building up these surfaces with electric welding. Sleeves on the inside of differential cases have been built up by oxy-acetylene welding and then bored out. Spring pads have been built up by electric welding.

Springs.—Broken main leaves have been converted into intermediate leaves where the breakage has occurred adjacent to the spring eye. Shackle pins have been chrome plated. In addition to building them up to standard size, this has doubled the life of the pins by providing increased resistance to wear and prevention of rusting. Some pins have been machined down and fitted with undersize bushings.

Wheels. — Where ball- or roller-bearings have become loose in the front-wheel hubs, bronze welding has been used to build up the internal areas so they can be rebored. Some hubs have been chrome or nickel plated.

Front Axle.—Chrome plating has been used to build up king pins, while one operator has machined his king pins down and fitted them with undersize bushings. Another grinds his king pins down to a standard undersize and then builds them up to the regular standard with welding material after subsequent use.

Axle Shafts. — Axle-shaft splines are built up and filled in with welding. The splines are then milled into the shaft in such a position that the driving face is of the parent metal. Splines have also been built up with chromium plating. Keyways have been reclaimed with bronze welding.

Cylinder Heads, Cylinder Blocks and Crankcases. — Cylinder heads have been salvaged and leaks stopped by welding, metal spraying and cold welding. Welding and cold welding have also been successful on cylinder blocks. Valve seats have been built up by welding metal alloys onto the worn valve seat. Both cast-iron and aluminum crankcases have been successfully welded. Minor cracking of blocks and heads as a result of leaking head gaskets has been cured with bronze welding.

Control Over Bitumens is Extended Westward

The Public Roads Administration of the Federal Works Agency, at the request of the Petroleum Coördinator for War, is extending control over the use of bituminous material in public highway work from 17 Atlantic seaboard states to the western borders of New Mexico, Kansas, Nebraska, and the Dakotas. The Public Roads Administrator is the official certifying agent for the Petroleum Coördinator for public highway work.

States newly included in the control area are: Alabama, Arkansas, that part of Florida not previously included, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, Texas, and Wisconsin.

The procedure to be followed by governmental agencies in the new area in applying for bituminous material is the same as that used previously in the seaboard states. It is based on "Recommendation No. 45, Amended" of the Petroleum Coördinator for War that road or street use of asphalt or of any asphaltic product, including road oils, or of tar or any tar product, shall be deferred for the duration of the emergency, except in the case of projects certified by the Public Roads Administration.

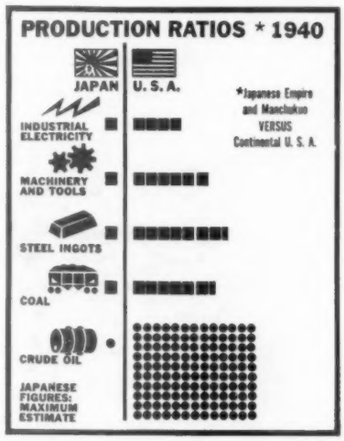
CURRENT BUSINESS INDICATORS

Developments of outstanding importance during the past month were the increasingly critical shortages of raw materials for war production and the formula that has been accepted by the National War Labor Board to govern future wage changes. Both these developments are certain to have a profound influence on all branches of industry during the critical months that lie ahead.

As the job of winning the war is the nation's first concern, the emergence of the material crisis overshadowed all other developments. It is now abundantly clear that there is not enough of many materials for essential war purposes, to say nothing of indirect military and civilian needs. This is true of a wide variety of steel products, most of the nonferrous metals, as well as an increasing number of the important ferroalloys. As a result, some plants producing war products have already been closed and others are almost certain to follow. Indeed, some Army officers attached to General Somervell's office are predicting that as many as 1,200 war plants, a tenth of the total, will be affected by the material shortages that have developed. This is probably an exaggeration, but it is generally recognized that the situation is extremely grave.

In part, the present difficulty has been inherited by WPB from the agencies that it succeeded; NDAC, OPM, and SPAB. To a large extent, however, the difficulty arises from mistakes that are being made currently. These mistakes include a defective priorities system, faulty distribution, prodigal waste of the materials that are available, a production program that lacks balance

Grant for OEM



and coördination, and a manifest unwillingness to take decisive action. Regardless of causes, there are persuasive indications that the future of WPB depends largely upon its ability to find a solution to the problem. At the moment Chairman Donald Nelson appears to be relying chiefly on the Production Requirements Plan to end the material shortage and, for this reason, the future of WPB is none too bright. Under PRP it is possible to trace each ton of scarce material to its ultimate use, but the plan is much too cumbersome and involved to cope with the present emergency. At any rate the plan has proved a dismal disappointment to date and there is little reason to expect a sudden reversal of form.

The decision of the National War Labor Board in the "Little Steel" case is significant because it is believed by some to mark the abandonment of appeasement for a definitive wage policy. Under the formula evolved in this case, claims for wage increases will be considered by the board for any one of the following reasons:

(1) For the period from January 1, 1941 to May 1942, which followed a long period of relative stability, the cost of living increased by about 15 per cent. If any group of workers averaged less than a 15-per cent. increase in hourly wage-rates during or immediately preceding or following this period, their established peace-time standards have been broken. If any group of workers averaged a 15-per cent. wage increase or more, their established peace-time standards have been preserved.

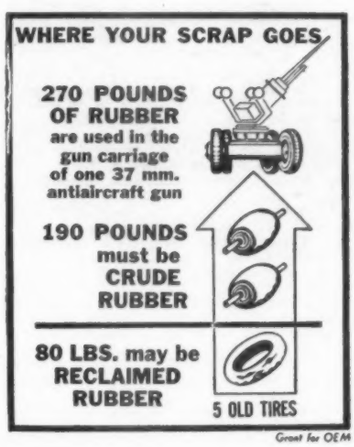
(2) Any claim for wage adjustments for the groups whose peace-time standards have been preserved can only be considered in terms of inequalities or of the substandard conditions specifically referred to in the President's message of April 27, 1942.

(3) Those groups whose peace-time standards have been broken are entitled to have these standards re-established as a stabilization factor.

(4) The board, as directed by the President in his April 27 message, will continue to "give due consideration to inequalities and the elimination of substandards of living."

In announcing this decision Board Chairman William H. Davis expressed the opinion that the application of the formula in future cases would "lead to a terminal for the tragic race between wages and prices." Many other competent observers, on the other hand, are convinced that the policy will be a sharp spur to the inflationary influences that are now held in leash with difficulty by the General Maximum Price Regulation. Leon Henderson, for example, believes that the board's cost-of-living formula applied to all wages will add several billion dollars to purchasing power. If this view is correct, the inflationary gap between goods available for purchase and the money available for spending will be widened appreciably. This view is apparently shared by the President, as Judge Samuel I. Rosenman, special Presidential adviser, is said to be at work on a plan for drastic wage control which would virtually block further wage increases for the duration of the war.

Meanwhile, industrial production in July made the most impressive gain of the current year. From a revised index of 176 for June, the preliminary index for July is reported at approximately 180 (1935-39=100), a gain of four points. In the corresponding month of last year the index was 160 per cent. of the 1935-39 average. As in the months immediately preceding, a major share of the July upturn was accounted for by war production.


WHERE YOUR SCRAP GOES
270 POUNDS OF RUBBER are used in the gun carriage of one 37 mm. antiaircraft gun
190 POUNDS must be CRUDE RUBBER
80 LBS. may be RECLAIMED RUBBER
5 OLD TIRES

Grant for OEM

CEMENT TYPES LIMITED—Designed to increase the output of Portland cement by 20 per cent. General Limitation Order L-179 was issued by the WPB on August 3. It restricts to six—in reality three—the number of types of cement that can be made, although there are some exceptions. It limits testing procedures to a single standard. It prohibits the allocation of any silo, bin or other storage space for the exclusive use of the Army, the Navy, the Coast Guard, the Maritime Commission or any other person.

The full text of the order follows:

PART 3033—PORTLAND CEMENT
(General Limitation Order L-179)

The fulfillment of requirements for the defense of the United States has made imminent a shortage in the supply of Portland cement for defense, for private account and for export; and the following order is deemed necessary and appropriate to protect the public interest and to promote the national war effort:

No. 3033.1 *General Limitation Order L-179.*

(a) *Restrictions.*—(1) Manufacture. On and after 20 days subsequent to the date of issuance of this order, no person shall manufacture any Portland cement except Portland cement which conforms with one or more of the following specifications as such specifications exist on the date of issuance of this order:

(i) Federal specifications: Emergency Alternate Federal Specification for cement; Portland-E-SS-C-191b, dated June 5, 1942;

(ii) Federal specifications: Emergency Alternate Federal Specification for cement; Portland-E-SS-C201a, dated June 5, 1942;

(iii) Federal specifications: Emergency Alternate Federal Specification for cement; Portland E-SS-C206a, dated June 5, 1942;

(iv) American Society for Testing Materials specifications: Emergency Alternate Specification for Portland Cement A.S.T.M. Designation EA-C 150-Type I, dated June 6, 1942;

(v) American Society for Testing Materials specifications: Emergency Alternate Specification for Portland Cement A.S.T.M. Designation EA-C 150-Type III, dated June 6, 1942;

(vi) American Society for Testing Materials specifications: Emergency Alternate Specifications for Portland Cement A.S.T.M. Designation EA-C 150-Type II, dated June 6, 1942.

(2) *Storage by Manufacturers.* On and after 20 days subsequent to the date of issuance of this order, no manufacturer of Portland cement shall allocate or continue the allocation of any silo, bin or other storage space or any part of any silo, bin or other storage space for the storage of Portland cement to and for the exclusive use of the Army, the Navy, the United States Coast Guard, the United States Maritime Commission, or any other person.

(3) *Requirements for Testing.* On and after 20 days subsequent to the date of issuance of this order, no manufacturer of Portland cement shall enter into any contract or agreement for the sale of Portland cement, which such contract or agreement shall require Portland cement to be tested in any other manner than in accordance with "Federal Specifications; Emergency Alternate Federal Specifications for Cement; Portland—dated June 5, 1942, E-SS-C-158a," or "American Society for Testing Materials Specifications: C77-40."

(b) *Specific Exemptions.* The provisions of this order shall not apply to Portland cement manufactured and stored pursuant to orders or contracts for any cement:

(1) To be used in the following named projects under the direction or control of the United States Bureau of Reclamation:

(i) Boise Project—Anderson Ranch Dam—Boise, Idaho;

(ii) Central Valley Project—Kennett Division—Redding, California;

(iii) Central Valley Project—Friant Division Friant, California;

(iv) Davis Dam Project—Kingman, Arizona.

(2) To be used in the following project under the direction or control of United States War Department, U. S. Army Engineer Corps:

(i) Norfolk Dam—Arkansas.

(3) To be used in the following projects under the direction or control of the Tennessee Valley Authority:

(i) Fontana Dam—Fontana Dam, North Carolina;

(ii) Douglas Dam—Rural Station, Jefferson City, Tennessee;

(iii) Fort Loudon Dam—Lenoir City, Tennessee;

(iv) Kentucky Dam — Gilbertsville, Kentucky;

(v) Apalachia Dam—Farner, Tennessee;

(vi) Ocoee No. 3 Dam—McFarland, Tennessee.

(4) To be used in oil wells under conditions of high temperature, such cement being commonly known as "oil-well cement";

(5) To be used persuant to the specific authorization of the Director General for Operations.

(c) *Records.* All persons affected by this order shall keep and preserve for not less than two years accurate and complete records concerning inventories, production and sales.

(d) *Audit and Inspection.* All records required to be kept by this order shall, upon request, be submitted to audit and inspection by duly authorized representatives of the War Production Board.

(e) *Reports.* Each person to whom this order applies shall file with the War Production Board such reports and questionnaires as said Board shall from time to time specify.

(f) *Violations.* Any person who wilfully violates any provision of this order, or who, in connection with this order, wilfully conceals a material fact or furnishes false information to any department or agency of the United States is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of, or from processing or using, material under priority control and may be deprived of priorities assistance.

(g) *Appeals.* Any person affected by this order, who considers that compliance therewith would work an exceptional and unreasonable hardship upon him, may apply for relief by addressing a letter directed to the Director General for Operations, Social Security Building, Washington, D. C., setting forth the pertinent facts and the reasons why such person considers that he is entitled to relief. The Director General for Operations may thereupon take such action as he deems appropriate.

(h) *Applicability of Other Orders.* The provisions of Priorities Regulation No. 1 (No. 944.14, *Inventory restrictions*) shall not apply to this order and all transactions affected thereby. Insofar as any other order issued by the Director General for Operations, or to be issued by him hereafter, limits the use of any material to a greater extent than the limits imposed by this order the restrictions of such other order shall govern, unless otherwise specified herein.

(i) *Communications.* Reports to be filed and other communications concerning this order shall be addressed to the War Production Board, Building Materials Branch, Washington, D. C., Ref: L-179.

Issued this 3d day of August, 1942.

AMORY HOUGHTON,
Director General for Operations

Stanton Walker, director of engineering, National Sand & Gravel Association, has made the following comment with reference to the order:

"At first glance it might appear that six types of cement are provided for instead of three. However, both the A.S.T.M. and Federal Specification Board have made emergency revisions in their specifications which make them identical as to requirements for comparable types. That is to say, Federal Specification E-SS-C-191b and A.S.T.M. Specification EA-C 150-Type I include the same limits on all chemical and physical properties; similarly Federal Specification E-SS-C-201a and the A.S.T.M. Type III specifications are the same, as are E-SS-C-206a and the A.S.T.M. Type II specification.

"The cement described in sub-paragraphs (i) and (iv) is standard Portland cement for use in ordinary work where special properties are not required. That described in sub-paragraphs (ii) and (v) is high-early-strength cement. Sub-paragraphs (iii) and (vi) cover the 'moderate-heat-of-hydration' cement so widely used in present-day construction. Except for the exemptions, manufacturers are prohibited from making cements which would conform to A.S.T.M. Type IV—low-heat-of-hydration — and A.S.T.M. Type V—sulphate-resistant cement.

"These emergency specifications relax certain requirements of the federal and A.S.T.M. Standards. A principal relaxation of interest to the cement user is the elimination of the requirement for 28-day tests on the standard and moderate-heat-of-hydration cements and for the 7-day tests on the high-early-strength cement. The prohibition against allocating bins and other storage space to specific users should be of special benefit to ready-mixed-concrete producers. It will result in eliminating, or at least greatly alleviating, difficulties encountered by producers in providing storage for a multiplicity of cements tested and approved by different purchasers."

PD-25A. — While plants holding mine serial numbers under P-56 will not be required to operate under the Production Requirements Plan and will therefore continue to obtain priorities assistance in accord with the procedure developed under P-56, it has been deemed advisable by the Mining Branch to obtain from producers advance information as to their quarterly requirements. For the present producers will be divided into two classes: (1) those whose receipts or withdrawals from inventory during the most recent calendar quarter, or whose anticipated receipts or withdrawals from inventory during the current or next succeeding calendar quarter, of metals in the forms included in Materials List 1, Revised, as given in PD-25A, aggregate $5,000 or more in value, and (2) those whose receipts or withdrawals aggregate less than $5,000 in value. A producer covered in (1) is regarded under Priorities Regulation No. 11 as a "Class I Producer."

The recent request of WPB for the submission of information on form PD-25A is applicable only to those whose receipts or withdrawals from inventory, as previously described, aggregate $5,000 or more in value. It may well be, according to V. P. Ahearn, executive secretary of the National Sand & Gravel Association, that some producers who would thus qualify did not receive the aforementioned request from WPB. Such producers should obtain from the nearest local WPB office form PD-25A and immediately execute and return it to the War Production Board in Washington.

Producers who fall in the classification of less than $5,000 and who may have received a request from WPB for information on form PD-25A should ignore it. This does not mean that quarterly information will not be requested from this class of producer, numbering as it does by far the bulk of the plants in the industry. There is now in process of development a simplified one-sheet form which will shortly be sent to such producers and, upon receipt, should be executed immediately and returned.

For the benefit of those who are required to execute form PD-25A the following observations, offered by Mr. Ahearn, may be helpful.

The information given in Section E, Part 1, determines whether or not PD-

25A should be filed. If the total value of the quantities listed in Section E, Part 1, is $5,000 or more, the report should be submitted. Conversely, if the total value is less than $5,000, PD-25A should not be submitted.

For the purpose of PD-25A sand-and-gravel producers should consider "sand and gravel" as one commodity. Accordingly, Section E, Part 2, should not be filled in.

In Section F there should be listed as separate items "rubber belting," "rubber hose," and "semi-fabricated and fabricated products for repairs to equipment listed in Schedule A of P-56." As to this last classification, no detailed breakdown is required, the over-all figure being the only one desired.

P-56 AGAIN AMENDED. — By a third amendment, effective August 8, the priorities position of certain nonmetallic-mineral producers under P-56 as amended March 2 has been improved.

(1) Producers in certain categories set out in the old provision, (c) (1) (ii), and formerly given an A-1-c rating are now granted A-1-a and A-1-c for repairs to equipment listed in Schedule A of P-56. These are producers in industries which qualify for blanket quotas for repair parts.[1]

(2) Of producers in industries which do not qualify for blanket quotas:

(a) Those who have experienced an actual breakdown may now be given whatever rating is needed to obtain the required parts, whereas their rating was A-1-a under the March 2 amendment;[2] and

(b) Those who want to make "reasonable advance provision to avert an actual breakdown or suspension" are now given an A-1-a rating in addition to the A-1-c rating provided by the March 2 amendment. The A-1-a rating was formerly available only in cases of actual breakdown.

Producers who have heretofore made application for repair-parts and new-equipment ratings on Form NM2[3] should continue to use it.

The new amendment provides that "no preference rating assigned by or pursuant to this order shall be applied or extended to deliveries of material to be used primarily to reduce costs rather than primarily to maintain or increase production."

Under the new order it is specifically provided that preference ratings assigned under it "shall be applied by an operator and extended by his suppliers in accordance with the terms of Priorities Regulation No. 3."[4] The operator's mine serial number must be endorsed on contracts and purchase orders.

The full text of the amendment follows:

[1][See *P-56 and P-56-a Amended Again*, P&Q, April 1942, pp. 30-33.—Ed.]

[3][See *Mining Branch Application Form*, P&Q, July 1942, pp. 42-43, where a reproduction of the form appears.—Ed.]

[2][This gives the Mining Branch the power to assign to such producers the higher ratings —AAA, AA-1, AA-2, etc.—which have been made available by Priorities Regulation No. 12, but only when there has been "an actual breakdown or suspension of operations." See *Rerating War Orders*, pp. 47-48 of this issue of P&Q. —Ed.]

[3][See *P-56 and P-56-a Amended Again*, Schedule A, P&Q, April 1942, p. 33.—Ed.]

[4][See *Preference Ratings Extendible*, P&Q, August 1942, pp. 33-34.—Ed.]

TITLE 32—NATIONAL DEFENSE
CHAPTER IX—WAR PRODUCTION BOARD
SUBCHAPTER B—DIRECTOR GENERAL FOR OPERATIONS
PART 982—MINES
AMENDMENT NO. 3 TO PREFERENCE RATING ORDER P-56
(AS AMENDED MARCH 2, 1942)

Preference Rating Order P-56 (Section 982.1) is hereby amended as follows:

(a) Paragraphs (c), (d), (e), (f), and (g) are hereby revoked.

(b) The following new paragraphs are hereby adopted:

(c) *Assignment of Preference Ratings* Subject to the terms of this order the following preference ratings are hereby assigned to deliveries to operators, but nothing herein contained shall prevent the use of any other or higher rating to which any person may be entitled by reason of any other preference rating, certificate, or order.

(1) A-1-a and A-1-c to deliveries of repair parts for machinery and equipment of the types listed in Schedule A[5] hereto: provided that such repair parts are for use in a Mining Enterprise less than 30 per cent. of the production of which in dollar value for the previous calendar quarter was derived from any one or more of the following:

Sand (except foundry sand), gravel, crushed stone and slag including all commercially recognized forms of these products:

Clay of all types, except those used for refractories and ceramics for electrical use:

Building and ornamental stone of all types:

Gypsum, talc, soapstone, slate (except for electrical use), and all raw material for the manufacture of lime and calcareous cements:

Such ratings shall be applied by an operator only to deliveries in any calendar quarter of a quota for each such rating consisting of such dollar value of repair parts as may be expressly authorized by the Director General for Operations after application by such operator in the form prescribed by the Director.

(2) A-8 to deliveries of material for other repairs to, for maintenance of, and for operating supplies for, property and equipment used in and essential to the operation of a mining enterprise.

(3) A-10 to deliveries of material for all other repairs, maintenance and operating supplies.

(d) *Other Preference Ratings Assignable.* The Director General for Operations may also, upon written or telegraphic request, assign the following ratings to deliveries of material to operators in particular cases. In acting on such requests the Director General will consider the importance to national defense of the material to be produced by the machinery, equipment or other material for which the rating is requested and the consumption of scarce material in the construction thereof.

(1) Such ratings as may be required to obtain deliveries of materials for repair of property or equipment used in and essential to the operation of a mining enterprise when and only when there has been an actual breakdown or suspension of operations because of damage, wear and tear, destruction or failure of parts and the like, and the essential material is not otherwise available. Requests for this rating must describe the material needed and the nature of the emergency.

(2) A-1-a and A-1-c to deliveries not rated under paragraph (c) (1) of repair parts for essential productive facilities up to the minimum required to make reasonable advance provision to avert actual breakdown or suspension. Requests for these ratings must describe the material needed and the reasons why advance provision is necessary to avert breakdown or suspension.

(3) To deliveries of essential material and equipment whether or not included in Schedule A[5], such preference ratings as the Director General may assign to particular orders for such equipment. Requests for such rating must describe the material needed and the reasons why it is essential for the proper operation of the mining enterprise.

(e) *Application and Extension of Preference Ratings.*

(1) Preference ratings assigned by or pursuant to this order shall be applied by an operator and extended by his suppliers in accordance with the terms of Priorities Regulation No. 3, as from time to time amended. An operator in applying such a preference rating shall also endorse on his contract or purchase order his serial number hereunder.

(2) No preference rating assigned by or pursuant to this order shall be applied or extended to deliveries of material to be used primarily to reduce operating costs rather than primarily to maintain or increase production.

(f) *Restrictions on Inventory.* In addition to the restrictions imposed by Priorities Regulations Nos. 1 and 3, as from time to time amended, an operator shall not accept deliveries (whether or not rated hereunder) of material for repair, maintenance, or operating supplies which will incease the inventory available to the operator for such purposes to an amount greater than the minimum necessary to sustain the current level of operaessary to sustain the current level of operations of the operator and the ratio of such inventory to current production shall in no event exceed the ratio of average inventory to average production for the years 1938, 1939, and 1940.

Issued this eighth day of August, 1942.

AMORY HOUGHTON,
Director General for Operations.

[5][See *Priorities Under PRP*, P&Q, August, 1942, pp. 3-A-35.—Ed.]

RERATING WAR ORDERS.—Provision for rerating war orders and for applying a new series of high preference ratings is made in Priorities Regulation No. 12, and amendments to Priorities Regulations 1 and 3, issued June 27 by the Director of Industry Operations.

The new ratings are AAA, AA-1, AA-2, etc., all which will take preference over A-1-a ratings. Heretofore the highest rating has been AA, whose use was permitted only by special authorization of the Director of Industry Operations. This rating is now abolished, and all outstanding AA ratings are automatically changed to AA-2.

The chief purpose of the rerating is to provide greater flexibility in the assignment of preference ratings to definite quantities of military and related non-military items, most of which have recently been either AA or in the A-1 series. It will permit the use of top ratings for a balanced program of urgent war materials without seriously disturbing the pattern of ratings for other war and essential civilian orders.

The new high ratings may be assigned either directly by the Director of Industry Operations or by appropriate officers of government war agencies expressly authorized to issue reratings. A special form, PD-4X, called a "Rerating Direction," is prescribed for use where the Army, Navy or other government war agency rerates deliveries of war materials to be made directly to it.

Whenever a Rerating Direction is issued, it must include the Allocation Classification and Purchasers' Symbols required by Priorities Regulation No. 10.

A separate form called a "Rerating Certificate," PD-4Y, is provided for use by a manufacturer whose deliveries to a war agency have been rerated, so that he may in turn rerate related deliveries to be made to him. The test for determining what deliveries may thus be rerated by a manufacturer or his suppliers is substantially the same as the test for determining to what deliveries an original rating may be applied or extended, as specified in Priorities Regulation No. 3, which was recently amended to provide a uniform standard in this respect.

A manufacturer may apply or extend the rerating to material which will be delivered by him on a rerated order, or physically incorporated in material so delivered, or to restore inventories to a practicable working minimum when material has been taken from inventory to fill a rerated order.

The new ratings may also be used by small companies for certain operating

supplies which will be consumed in filling the rated order, up to 10 per cent. of the cost of materials to be processed, provided that not more than 25 per cent. of such operating supplies are metals in the forms listed in Priorities Regulation No. 11. Such reratings may not be used to obtain operating supplies by any company whose use of the metals listed in Regulation 11 amounts to more than $5,000 in a quarter. Most such companies obtain ratings for their operating supplies under the Production Requirements Plan.[6]

Companies operating under the Production Requirements Plan are specifically authorized, like other companies, to apply or extend the higher ratings to rerate deliveries to themselves, but may not use the ratings to obtain greater quantities of material than they are authorized to receive on their PRP Certificate (Form PD-25A) or a supplementary certificate issued upon application on Form PD-25F or PD-25H.

Priorities Regulation No. 1 has been amended by altering the provision with respect to displacement of rated orders by new orders bearing a higher rating. Previously no producer was required to divert material already processed to fill an order rated A-10 or higher which was within 15 days of completion, even when he received a new order with a higher rating, unless the new rating was AA. Hereafter this provision applies only in case the rating on the original order was higher than A-2. Such an order within 15 days of completion must be displaced only by a new order with an AAA rating, or by specific direction from the Director of Industry Operations.

In no case, however, is a company required to terminate existing production schedules in less than 15 days after the receipt of a new rated order, and a company may continue on its existing production schedule up to a maximum of 40 days if a change is impracticable, unless specifically instructed to change the schedule by the Director of Industry Operations.

Priorities Regulation No. 3 is amended to conform to the provisions of Regulation 12, and the amendments to Regulation 1. The amendment to Regulation 3 also modifies the previous provision with respect to simultaneous extension of several different ratings. Whereas previously a company having several different ratings to be extended to orders for the same material could put them all together and write one purchase order for the entire quantity, using the lowest rating for it all, this will now be permitted only when it is not commercially practicable to rate and obtain the items separately.

TRUCK PARTS.—In a move to expedite production of replacement parts to keep the country's motorized equipment in good running order for the duration of the war, the War Production Board has ruled that producers may schedule the production of replacement parts without regard to purchase orders or contracts placed with them for other material on ratings lower than A-1-a.

Amendment No. 1 to Limitation Order L-158 authorizes producers to schedule production of essential replacement parts ahead of all other orders rated lower than A-1-a.

The amendment makes certain other changes in the replacement parts order. One of these is merely a modification of the definition of a truck trailer to make it clear that the definition applies to passenger trailers.

Another change revises the section of the order which provides that consumers must turn in a used part for every new part purchased.

Under this change a producer or distributor may sell and deliver any replacement part to a consumer without receiving a used part in exchange, provided that the part involved is not installed in the consumer's vehicle by the producer or distributor from whom it was purchased, and the consumer signs a statement certifying that he will use the new part for the replacement purposes only and will, within 30 days after purchasing it, dispose of his used part through regular scrap channels. The use of the certificate does not apply to parts consumed in use or lost or stolen. Such parts are exempt from the turn-in regulations.

This provision is intended to relieve consumers who are in a position to repair their own vehicles and do not wish to have the vehicles torn down at a repair shop. The amendment also exempts federal, state and local governments from the turn-in rule, provided they are forbidden by law from disposing of used equipment.

TRUCK RESTRICTIONS EASED. — Revised standards for conservation of trucks operated by contract and private carriers have been set up in a new order issued July 23 by the Office of Defense Transportation.

The new order (General Order ODT No. 17) will supplant General Orders ODT Nos. 4 and 5, governing over-the-road operations of contract and private carriers, and those portions of General Order No. 6 which govern local-delivery operations of such carriers.[7]

Portions of General Order No. 6 which apply to local-delivery operations of common carriers will remain in effect. A revision of General Order ODT No. 3, governing over-the-road operations of common carriers already has been issued.

General Order No. 17 requires that on and after August 1, trucks operated by contract and private carriers in over-the-road service be loaded to capacity on a considerable portion of the trip out or back and that the operator use due diligence to obtain a full load over the entire round trip.

On and after September 1 contract and private carriers must endeavor in good faith to rent or lease a truck prior to its departure from any point without a load. This will include registering any truck for which no load has been obtained with a Joint Information Office and, in the event no such office has been established in the vicinity, making appropriate inquiries of other carriers.

Joint Information Offices are in process of being established by carriers and carrier associations throughout the country under General Order ODT No. 13. This order was amended July 23 to tie in with General Order No. 17 and revisions in General Order No. 3 and a new provision was added to permit employees of carriers to serve as part-time managers or employees of Joint Information Offices, subject to prior approval of the ODT. The amendment became effective July 23.

As the new and revised orders take effect, all truck operators will be divided into two main classifications—common carriers and motor carriers. Common carriers are these which hold themselves out to the general public to transport property for hire. Contract and private carriers, who can not pick up loads for hire, are defined for purposes of conservation of equipment as motor carriers.

Under General Order No. 17 contract and private carriers will be required to reduce their total mileage by at least 25 per cent. as compared with the corresponding month of last year, with certain adjustments for increases or decreases in business during the intervening period.

They also must eliminate all special deliveries, except to hospitals, and all call-backs. They also are prohibited from making more than one delivery a day to the same point from any one point of origin, except under certain circumstances.

Deliveries extending up to 25 air miles beyond the boundaries of a municipality or involving one-way trips up to 25 miles in length are defined by the orders as local deliveries. All others are considered as over-the-road deliveries.

As in Order No. 3 Revised, all operators affected by Order No. 17 must:

1. Eliminate wasteful operation and duplication of parallel services, and curtail schedules and services to the extent necessary to comply with the order.
2. Limit the speed of trucks to 40 miles an hour.
3. Conserve and properly maintain tires and equipment.
4. Lease or rent their motor trucks whenever practicable or necessary to comply with the order.

A number of truck operations are exempt from the capacity-load and mileage-reduction provisions of Order No. 17 and also from restrictions on the number of deliveries, including special deliveries.

These exemptions include trucks engaged exclusively in the transportation of explosives; in the transportation of repair and service men and their supplies and equipment; sanitation trucks; trucks serving public utilities; trucks operated under the direction of the armed forces; trucks operated in emergencies for the protection of life and health, and trucks handling telegraph, radio and cable communications and the U. S. mails.

Trucks classed as special equipment are exempt from all the above provisions as well as from a provision limiting gross weights to 120 per cent. of the rated load-carrying ability of the tires, as defined in an appendix to the order.

Tank trucks and trucks controlled or operated by persons principally engaged in farming are exempt from the entire order, as in Order No. 3, Revised.

ODT announced that general permits to cover the movement of certain additional commodities are being considered. These commodities include solid fuels and ores, commodities delivered to vessels and construction projects, construction materials delivered to the armed forces, war materials, etc. The nature of such permits would be determined by the types of operations involved.

The complete text of ODT 17 follows:

TITLE 49—TRANSPORTATION AND RAILROADS
CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION
(General Order O.D.T. No. 17)

PART 501—CONSERVATION OF MOTOR EQUIPMENT
SUBPART K—MOTOR CARRIERS OF PROPERTY

Supersedes General Order O.D.T. No. 4, as amended, General Order O.D.T. No. 5, as amended, and that portion of General Order O.D.T. No. 6 which is applicable to private and contract carriers.

By virtue of the authority vested in me by Executive Order No. 8989, issued December

[6][See *Priorities Under PRP*, P&Q, August 1942, pp. 34-35.—ED.]

[7][See *Truck-Transport Restrictions*, P&Q, July 1942, pp. 43-45, and *Return-Load Order Canceled*, P&Q, August 1942, pp. 35-56.—ED.]

18, 1941, and by Executive Order No. 9156, issued May 2, 1942, and in order to assure maximum utilization of the facilities, services, and equipment of carriers by motor vehicle for the preferential transportation of materials of war and to prevent shortages in motor vehicle equipment necessary for such transportation, as contemplated by Section 6 (8) of the Interstate Commerce Act; to conserve and providently utilize vital equipment, material, and supplies, including rubber; and to provide for the prompt and continuous movement of necessary traffic, the attainment of which purposes is essential to the successful prosecution of the war,

IT IS HEREBY ORDERED, That:

Sec.
501.65 Definitions.
501.66 Elimination of waste.
501.67 Mileage reduction requirements.
501.68 Special deliveries, call backs, number of deliveries.
501.69 Loading and operating requirements.
501.70 Exemptions.
501.71 Special or general permits.
501.72 Submission of plans for joint action.
501.73 Records and reports.
501.74 Filing of rate publications.
501.75 Revocation and effective date.

AUTHORITY: §§ 501.65 to 501.75, inclusive, issued under E.O. 8989, 6 F.R. 6725, and E.O. 9156, 7 F.R. 3349.

§ 501.65 *Definitions.* As used herein:

(a) The term "person" means any individual, firm, copartnership, corporation, municipal corporation, association, including a farm cooperative association as defined in the Agricultural Marketing Act, approved June 15, 1929, as amended, or other type of legal entity, or any trustee, receiver, assignee, or personal representative thereof.

(b) The term "property" means anything, except passengers, capable of being transported by motor truck.

(c) The terms "motor carrier" and "carrier" mean any person other than a person which holds itself out to the general public to engage in the transportation of property for compensation, which engages in the transportation of property by motor truck, and includes contract carriers by motor truck and private carriers by motor truck.

(d) The terms "motor truck" and "truck" mean either (1) a straight truck, (2) a combination truck-tractor and semi-trailer, (3) a full trailer, (4) or any combination thereof, (5) or any other rubber-tired vehicle propelled or drawn by mechanical power or animals when used in the transportation of property, other than a motor vehicle engaged primarily in the transportation of passengers.

(e) The term "operating unit" means that portion of the motor truck operations conducted by any motor carrier from any given terminal, base of operation, or municipality. The total operating units of any motor carrier shall include all operations conducted by such motor carriers.

(f) The term "gross weight" means the aggregate weight of a motor truck and its lading.

(g) The term "rated load-carrying ability" as applied to a truck means the weight which the tires mounted on the load bearing wheels of such truck are capable of carrying as determined in the manner set forth in Appendix No. 1 attached hereto.

(h) The terms "capacity load" or "loaded to capacity" as applied to a truck mean either (1) the quantity of property, by weight, which may be carried in said truck, determined by deducting the weight of said truck from its rated load carrying ability, or (2) the maximum quantity of property, by volume, which may be stowed by efficient methods and safely transported in the load bearing space of the truck, whichever quantity is the lesser in weight.

(i) The term "delivery" means the operation of a motor truck by a motor carrier from any one point to any other point for the purpose of enabling such motor carrier to relinquish possession of property after transportation or to take possession of property for transportation, or both, and includes an offer or attempt to so relinquish or take possession of such property.

(j) The term "special delivery" means a delivery other than one made in the course of a normal delivery service.

(k) The term "call back" means any call made by a motor truck of a motor carrier at any given premises, other than for the purpose of making a delivery or for the purpose of repairing, servicing or maintaining such truck.

(l) The term "over-the-road service" means all operations of a motor truck except: (1) those within an area which includes any municipality or urban community and a zone extending 25 air miles from the boundaries thereof; (2) those within and between contiguous municipalities or urban communities; (3) those not more than 25 miles in length.

(m) The term "local delivery service" means all operations of a motor truck except over-the-road service.

(n) The term "special equipment" means any low-bed motor truck, or any motor truck the primary carrying capacity of which is occupied by mounted machinery.[8]

§ 501.66 *Elimination of Waste.* Every motor carrier shall:

(a) Eliminate wasteful operation and duplication of parallel services, and curtail schedules and services to the extent necessary to carry out the purposes of this subpart;

(b) Curtail the speed of motor trucks to 40 miles per hour or less;

(c) Conserve and properly maintain tires, motor trucks, and other transportation facilities necessary in conducting the business of such carrier;

(d) Lease or rent its motor trucks whenever practicable and to the extent necessary to carry out the purposes of this subpart.

§ 501.67 *Mileage Reduction Requirements* Each motor carrier shall reduce the total mileage of motor trucks operated in each operating unit during any calendar month, by not less than 25 per cent, of the total mileage of motor trucks operated by such carrier in the same operating unit during the corresponding calendar month of 1941, exclusive of the mileage eliminated as a result of the requirements of § 501.68. In the event any such carrier was not operating in the same operating unit during the corresponding calendar month of 1941, the mileage of motor trucks operated by such carrier in such operating unit during the month of May, 1942, shall be used as a basis for computing the reduction in monthly motor-truck mileage required herein. Motor carriers not engaged in operations in any operating unit prior to June 1, 1942, shall not institute or continue such operations until the mileage which such carrier may operate in such operating unit shall have first been determined and authorized by the Office. If operations in any operating unit of any such carrier were increased between the month for which current reduction is being computed and the corresponding month of 1941, as a result of the acquisition of any motor-truck operations of any other carrier, there shall be added to the total mileage of motor trucks operated in such operating unit by such acquiring carrier for the month which constitutes the basis for such reduction the total mileage of motor trucks engaged in the acquired operations during the corresponding month of 1941, or if such operations were not being conducted during such month, then during the last month of such operations prior to the date of such acquisition. If any portion of the operations in any operating unit of such carrier were decreased between the month for which current reduction is being computed and the corresponding calendar month of 1941, as a result of the sale, lease or transfer of any motor-truck operations, the total mileage of motor trucks operated in any operating unit by such carrier for the month which constitutes the basis for such reduction, shall be reduced by the total mileage of motor trucks operated in that portion of the operating unit so disposed of by such carrier.

§ 501.68 *Special Deliveries, Call Backs, Number of Deliveries.* Except as provided in § 501.70 of this subpart, no person shall cause to be made by motor truck and no motor carrier when operating a motor truck shall make:

(a) Any special delivery, except to hospitals.

(b) Any call back.

(c) More than one delivery from any one point of origin to any one point of destination during any calendar day except:

1) When the property to be delivered exceeds the capacity load of the motor truck engaged in the delivery thereof, in which event each delivery, except the final delivery, shall be a capacity-load delivery; or

(2) One additional delivery when the property to be delivered requires the use of a motor truck, other than the type used in making the first delivery, specially adapted for and used exclusively in the transportation of such property; or

(3) One additional delivery when made for the purpose of picking up empty containers if such additional delivery is made without increasing the mileage of any motor truck; or

(4) One additional delivery on the day next preceding a national holiday when such holiday falls on a Saturday, or on the Saturday next preceding a national holiday when such holiday falls on a Monday, provided such contract carrier does not make any delivery on such holiday.

§ 501.69 *Loading and Operating Requirements.* (a) No motor carrier shall operate any motor truck in over-the-road service unless it is loaded to capacity, except as follows:

(1) A motor truck, while outbound from the origin point of a trip to the point most distant therefrom to which the truck is operated on such trip, and also while inbound, may be operated on a portion of the route or routes travelled while empty or partially laden, if, during the course of the outbound or inbound movement, the truck is laden with a capacity load while operated over a considerable portion or segment of the route or routes travelled in over-the-road service, and if the carrier uses due diligence in maintaining a capacity load upon the truck at all times while en route.

(2) On and after September 1, 1942 each motor carrier and its representatives, including the representative in immediate control and possession of the truck, shall endeavor in good faith prior to its departure from any point when empty to lease or rent such truck consistent with any prior commitments involved in the use of said truck *en route*, to another person for the transportation of property. In endeavoring to lease or rent such truck each such carrier and its representative or representatives shall inquire at the register with the joint information office established at or near such point pursuant to General Order O.D.T. No. 13[9], or by a state with the approval of the Office of Defense Transportation, and if there be no such office at or near such point, shall make appropriate inquiries of other carriers at their offices or terminals, or both, located at such point.

(3) Nothing in this subpart contained shall be construed to require the loading of a motor truck to such an extent that the gross weight of the truck will exceed the actual safe capacity of any bridge or other structure *en route*, as determined by state or local authorities, or will exceed the maximum gross weight limitations prescribed by the applicable state law, proclamation, or regulation, federal statute, or Executive Order, whichever is currently controlling, but such truck shall be loaded as nearly to the extent required by this subpart as may be consistent with such applicable limitations.

(4) A motor truck which has been so disabled *en route* that a capacity load can not be transported or carried thereon may be operated in over-the-road service empty or partially laden to the nearest point where the carrier operating said truck maintains, provides, or can obtain repair services.

(b) No motor carrier shall operate in over-the-road service any motor truck, the gross weight of which exceeds by more than 20 per cent, its rated load-carrying ability.

(c) The provisions of this subpart shall not be so construed or applied as to require any motor carrier to perform any transportation service, the performance of which by it is not authorized or sanctioned by law or to render any such service beyond its transportation capacity.

§ 501.70 *Exemptions.* (a) The provisions of § 501.67, paragraphs (a) and (c) of § 501.68, and paragraph (a) of § 501.69 of this subpart shall not apply to or include the following:

(1) Any motor truck while actually transporting exclusively high explosives, such as, and including dynamite, blasting caps detonation fuses, black powder, gun powder, and other like explosives, susceptible to detonation by blasting cap and the accessories necessary for the use of the foregoing;

(2) Any motor truck when engaged exclusively in the transportation of repair or service men and their supplies or equipment;

(3) Any motor truck operated exclusively for the purpose of collecting and disposing of sewage or garbage or rendering other sanitation services, pursuant to government order, regulation, or contract;

(4) Any motor truck operated exclusively in connection with the construction and maintenance of essential telegraph, telephone, organized radio communications, electric light and power, gas and water supply utilities, and pipe lines, railroads, street railways, and public highways.

(5) Any motor truck while operated under direction of the armed forces of the federal or a state government;

(6) Any motor truck operated in emergencies exclusively for the purpose of making deliveries of medicines or other supplies or equipment necessary for the protection or preservation of life, health, or for public safety;

(7) Any motor truck operated exclusively for the purpose of making deliveries of telegraph, radio, and cable communications or the United States mail.

(b) The provisions of § 501.67, paragraphs (a) and (c) of § 501.68, and paragraphs (a) and (b) of § 501.69 of this subpart shall not apply to or include the operation of any special equipment.

(c) The provisions of this subpart shall not apply to or include the following:

(1) Any motor truck, the primary carrying capacity of which is occupied by a mounted tank or tanks;

(2) Any motor truck controlled and operated by any person or persons principally engaged in farming, when used in the transportation of agricultural commodities and products thereof, from a farm or farms, or in the transportation of farm supplies to a farm or farms.

(3) Any motor truck owned, controlled, or operated by the armed forces of any state or of the United States.

(4) Any motor truck engaged in the transportation of property wholly within the boun-

[8] [Ready-mixed-concrete trucks obviously are "special equipment."—Ed.]

[9] 7 F. R. 5066.

daries of any industrial or manufacturing plant, or between units of such plant separated only by a public highway, when such transportation is an integral part of the business of such industrial or manufacturing plant.

§ 501.71 *Special or General Permits.* The provisions of this subpart shall be subject to any special or general permit issued by this office to meet specific needs or exceptional circumstances, or to prevent undue public hardships.

§ 501.72 *Submission of Plans for Joint Action.* (a) All joint and collective action taken by motor carriers with respect to local delivery service in compliance with this subpart shall be in conformity with the terms and provisions of the joint statement issued by the Office of Defense Transportation and the Department of Justice dated March 12, 1942. In accordance with such statement, proposed plans for pooled or coöperative deliveries, for curtailing services, or for entering into other arrangements involving joint action may, if desired, be submitted to this office for consideration and approval. In order that this office may be informed concerning plans which have been or are hereafter placed in operation without such prior submission for consideration and approval, a copy of each such plan shall be filed with this office.

(b) Whenever joint action between two or more motor carriers is contemplated with respect to over-the-road service in order to accomplish any of the purposes of this subpart, such carriers may formulate and submit to this office for consideration a plan or plans designed to accomplish such purposes. No action shall be taken in furtherance of such plan or plans except in compliance with a specific order or orders issued by this Office.

§ 501.73 *Records and Reports.* Every motor carrier shall prepare and maintain records showing for each calendar month, the mileage of each motor truck operated by such carrier, and shall prepare and maintain such logs and other records and make such reports as this office may hereafter require for the purpose of this subpart. All such records shall be kept available and open for inspection at all reasonable times for examination by any accredited representtive of this office.

§ 501.74 *Filing of Rate Publications.* Every motor carrier required by law to file schedules or contracts of rates, charges, rules, or practices shall file forthwith with the Interstate Commerce Commission in respect of transportation in intrastate or foreign commerce and with each appropriate state regulatory body in respect of transportation in interstate commerce, and publish in accordance with law, and continue in effect only for the duration of the present emergency unless otherwise, ordered, schedules, contracts, or appropriate supplements to filed schedules or contracts, setting forth any changes in in the rates, charges, rules, regulations, or practices of such carrier which may be necessary to accord with this subpart, together with a copy of this subpart; and forthwith shall apply to said commission and each such regulatory body for special permission for such schedules, contracts, or supplements to become effective on one-day's or the absolute minimum period of, notice.

§ 501.75 *Revocation and Effective Date.* (a) That title 49, Chapter 11, Part 501, Subpart C, General Order O.D.T. No. 4[10], as amended[11], §§ 501.16 to 501.23, inclusive, and Title 49, Chapter II, Part 501, Subpart D, General Order O.D.T. No. 5[12], as amended[13], §§501.24 to 501.30, inclusive, be and the same are hereby revoked, effective as of the date this subpart becomes effective.

(b) That the application of the provisions of General Order O.D.T. No. 6[14], as amended[15] (Title 49, Chapter II, Part 501, Subpart E, §§501.31 to 501.36, inclusive), General Permit O.D.T. No. 6-1[16] (Title 49, Chapter II, Part 521, Subpart E, § 521.2000), and General Permit O.D.T. No. 6-2[17] (Title 49, Chapter II, Part 521, Subpart E, § 521.2001) to the motor-truck operations of any motor carrier be and the same are hereby revoked, effective as of the date this subpart becomes effective.

(c) The provisions of:

(1) Subparagraph (2) of paragraph (a) of §501.69 of this subpart shall become effective September 1, 1942, and shall remain in full force and effect until further order of this Office.

(2) This subpart, except as specified in subparagraph (1) of this paragraph (c), shall become effective August 1, 1942, and shall remain in full force and effect until further order of this Office.

Issued at Washington, D. C., this 23rd day of July, 1942.

JOSEPH B. EASTMAN,
Director of Defense Transportation.

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[107] F. R. 3005.
[117] F. R. 4119; 7 F. R. 4185; 7 F. R. 5448.
[127] F. R. 3007.
[137] F. R. 4119; 7 F. R. 4184; 7 F. R. 4185; 7 F. R. 5448.
[147] F. R. 3008.
[157] F. R. 3532; F. R. 4184.
[167] F. R. 4185.
[177] F. R. 4186.

APPENDIX No. 1

Under the terms of § 501.65 (g) of this subpart the rated load-carrying ability of the tires mounted on the running wheels of a motor truck shall be determined by multiplying the number of tires mounted on the running wheels of such motor truck, of the size and description actually used, by the number of pounds appearing opposite the description of such tires in this Appendix.

Example:

A motor truck uses 10 running tires, size 9.00-20, 10 ply. The rated load-carrying ability of each such tire, in pounds per tire, as shown in this Appendix, is 3,450. Multiply 10 (number of tires) by 3,450 (rated load-carrying ability of each tire). The result is 34,500 pounds, which is the "rated load-carrying ability" of the motor truck as defined in § 501.65 (g).

TRUCK TYPE TIRES USED IN MOTOR TRUCK OPERATIONS

Description of Tires Size	No. of Plies	Rated Load-Carrying Ability in Pounds Per Tire
5.00-16	4	730
5.00-16	6	835
5.50-16	4	840
5.50-16	6	955
6.00-16	4	990
6.00-16	6	1130
6.00-17	6	1250
6.00-20	6	1400
6.00-20/30x5	8	1700
6.00-24/34x5	8	1950
6.25-16	4	1065
6.25-16	6	1210
6.50-16	4	1135
6.50-16	6	1290
6.50-17	6	1500
6.50-18	6	1575
6.50-20	6	1700
6.50-20/32x6	8	1950
Light Truck 15"	6	1500
Light Truck 15"	8	1700
7.00-15	6	1415
7.00-15	8	1575
7.00-16	6	1485
7.00-16	8	1650
7.00-17	6	1550
7.00-17	8	1725
7.00-18	8	1800
7.00-20	8	1950
7.00-20/32x6	10	2250
7.00-24/36x6	10	2575
7.50-15	6	1595
7.50-15	8	1825
7.50-15	10	2225
7.50-16	6	1660
7.50-16	8	1850
7.50-17	8	2000
7.50-18	8	2100
7.50-18/32x7	10	2500
7.50-20	8	2250
7.50-20/34x7	10	2700
7.50-24	8	2550
7.50-24/38x7	10	3100
8.25-15	10	2275
8.25-15	12	2600
8.25-16	6	1770
8.25-16	8	2000
8.25-18	10	2550
8.25-18	12	2925
8.25-20	10	2750
8.25-20	12	3150
8.25-22	10	2950
8.25-24	10	3125
8.25-24	12	3600
9.00-15	10	2875
9.00-15	12	3200
9.00-18	10	3225
9.00-18	12	3600
9.00-20	10	3450
9.00-20/36x8	12	3850
9.00-22	10	3675
9.00-24	10	3925
9.00-24/40x8	12	4375
10.00-15 (9.75-15)	12	3375
10.00-18 (9.75-18)	12	3775
10.00-20 (9.75-20)	12	4000
10.00-20/38x9	14	4350
10.00-22 (9.75-22)	12	4275
10.00-24 (9.75-24)	12	4550
10.00-24/42x9	14	4925
11.00-18 (10.50-18)	12	4200
1.00-20 (10.50-20)	12	4500
1.00-20 (10.50-20)	14	4850
11.00-22 (10.50-22)	12	4750
11.00-24 (10.50-24)	12	5000
11.00-24 (10.50-24)	14	5400
12.00-18 (11.25-18)	14	5125
12.00-20 (11.25-20)	14	5475
12.00-20/40x10	16	5875
12.00-22	14	5800
12.00-24 (11.25-24)	14	6150
12.00-24/44x10	16	6600
13.00-20 (12.75-20)	16	6750
13.00-24 (12.75-24)	16	7575
14.00-20 (13.50-20)	16	8200
14.00-20 (13.50-20)	18	8700
14.00-24 (13.50-20)	16	9150
14.00-24 (13.50-24)	18	9700
No. 10	6	1100
No. 11	6	1100
No. 12	6	1200
No. 13	6	1300
No. 14	6	1400
No. 15	6	1600
No. 16	6	1600
No. 17	8	1700
No. 18	8	1800
No. 19	8	1900
No. 20	10	2000
No. 22	10	2200
No. 28	10	2600
No. 34	10	3400
No. 40	12	4000
No. 42	12	4200
No. 44	12	4400
No. 48	12	4800
No. 50	12	5000
No. 52	12	5200

PASSENGER-TYPE TIRES USED IN MOTOR-TRUCK OPERATIONS

Description of Tires Size	No. of Plies	Rated Load-Carrying Ability in Pounds Per Tire
440/450-21	4	800
440/450-21	6	900
475/500-19	4	895
475/500-19	6	1005
475/500-20	4	925
475/500-20	6	1035
500-16	4	710
550-16	4	810
550-16	6	900
525/550-17	4	955
525/550-17	6	1075
525/550-18	4	1000
525/550-18	6	1125
525/550-19	4	1040
525/550-19	6	1170
600-16	4	915
600-16	6	1065
600-17	4	1025
600-17	6	1155
600-18	4	1070
600-18	6	1205
600-19	4	1115
600-19	6	1255
600-20	4	1190
600-20	6	1350
625-16	4	985
625-16	6	1140
625/650-16	4	1050
625/650-16	6	1215
650-16	4	1050
650-16	6	1215
650-17	4	1175
650-17	6	1320
650-18	4	1225
650-18	6	1375
650-19	4	1270
650-19	6	1430
650-20	4	1320
650-20	6	1600
700-15	4	1095
700-15	6	1330
700-16	4	1145
700-16	6	1395
700-17	4	1300
700-17	6	1465
700-18	4	1355
700-18	6	1525
700-19	4	1405
700-19	6	1585
700-20	4	1500
700-20	6	1700
750-15	4	1180
750-15	6	1500
750-16	4	1235
750-16	6	1560
750-17	4	1460
750-17	6	1645
750-18	4	1520
750-18	6	1710
750-19	4	1580
750-19	6	1775
750-20	4	1700
750-20	6	1900
825-15	4	1260
825-15	6	1625
825-16	4	1320
825-16	6	1700
900-15	6	1800
900-16	6	1875

The full text of General Permit O.D.T. No. 17-5, which exempt trucks hauling mine products from the mileage-reduction (§501.67) and leasing or renting (§501.69(a)(2) requirements of O.D.T. 17, follows:

(General Permit O.D.T. No. 17-5)

PART 521—CONSERVATION OF MOTOR EQUIPMENT PERMITS

SUBPART K—MOTOR CARRIERS OF PROPERTY

Transportation of Mine Products

In accordance with the provisions of General Order ODT No. 17, Title 49, Chapter II, Part 501, Subpart K, § 501.71.

It is hereby authorized, That:

§ 521.2880 *Transportation of Mine Products.* Any motor carrier when operating a motor truck engaged exclusively in the transportation of the products of a mining, smelting, or refining enterprise, if such enterprise is operating under a Preference Rating Order or a Certificate of Operation issued by the War Production Board, from a mine to the preparing, smelting, or refining facilities or to the nearest adequate rail or water shipping point, or between preparing, smelting or refining facilities, or when operating a motor truck engaged exclusively in the transportation of the waste products of such a mining, smelting, or refining enterprise from the mine, preparing, smelting or refining facilities to the point of disposal of such waste products, is hereby relieved, in respect of trucks engaged in such transportation, from compliance with the provisions of § 501.67 and subparagraph (2) of paragraph (a) of § 501.69 of General Order ODT No. 17. (E. O. 8989 6 F.R. 6725; E.O. 9156, 7 F.R. 3349; Gen. Order ODT No. 17, 7 F.R. 5678.)

This General Permit shall become effective August 1, 1942, and shall remain in full force and effect until further order of this Office.

Issued at Washington, D. C., this 29th day of July, 1942.

JOSEPH B. EASTMAN,
Director of Defense Transportation.

General Permit ODT No. 17-12 exempts trucks used in connection with construction from the requirements of §501.67 (mileage reduction), §501.68 (c) (one delivery a day) and §501.69 (a) (2) (leasing or renting). The text follows:

(General Permit O.D.T. No. 17-12)

PART 521—CONSERVATION OF MOTOR EQUIPMENT PERMITS

SUBPART K—MOTOR CARRIERS OF PROPERTY

Transportation in Connection with Construction

In accordance with the provisions of General Order ODT No. 17, Title 49, Chapter II, Part 501, Subpart K, 501.71,

It is hereby authorized, That:

521.2887 *Operations Within a Construction Area.* Any motor carrier when operating a motor truck wholly within the territorial limits of a construction project and engaged in the transportation of property used or to be used or in connection with such construction project is hereby relieved, in respect of any truck engaged in such transportation, from compliance with the provisions of 501.67 paragraph (c) of 501.68 and subparagraphs (1) and (2) of paragraph (a) of 501.69 of General Order ODT No. 17.

521.2888 *Operation of Dump Trucks.* Any motor carrier operating a dump truck in local delivery service when such truck is engaged exclusively in the transportation of soil or waste material from or to a construction project is hereby relieved, in respect of trucks so engaged in such transportation, from compliance with the provisions of 501.67, paragraph (c) of 501.68 and subparagraph (2) of paragraph (a) of 501.69 of General Order ODT No. 17. (E.O. 8989, 6 F.R. 6725; E.O. 9156, 7 F.R. 3349; Gen. Order ODT No. 17, 7 F.R. 5678.)

This General Permit shall become effective August 1, 1942, and shall remain in full force and effect until further order of this Office.

Issued at Washington, D. C., this 31st day of July, 1942.

JOSEPH P. EASTMAN,
Director of Defense Transportation.

Nevada Gets New Plant for Grinding Fine Talc

A talc-grinding plant has been placed in operation at Cartago, Nevada, by the Nevada Minerals Company.

Fine talc from the corporation's properties is being ground for manufacture of high quality talcum powders. Coarser material is shipped to Salt Lake City for use in manufacturing explosives for industrial and war purposes.

H. B. Kahn is mill superintendent.

FIELD OFFICES, BUREAU OF PRIORITIES, DIVISION OF INDUSTRY OPERATIONS, WAR PRODUCTION BOARD

State	City	Priorities Division Manager	Address	Telephone
Alabama	Birmingham	Martin J Lide	302 Phoenix Bldg	7-3915
Arizona	Phoenix	Lee G Browne	408 Security Bldg	4-7101
Arkansas	Little Rock	Charles S Christian	Rector Office Bldg	
California	Los Angeles	A R Thomas	1040 Western Pacific Bldg	Prospect 7531
	San Francisco	James A Folger	1355 Market Street	Underhill 3301
Colorado	Denver	Virgil L Board	521 U S Nat'l Bank Bldg	Main 4231
Connecticut	Hartford	Edwin L Howard	119 Ann St	7-9251
Florida	Jacksonville	George H Andrews	530 Lynch Bldg	50693
	Tampa	Herbert Brennan	901 Wallace South Bldg	M-8461
Georgia	Atlanta	John B Reeves	116 Candler Bldg	Jackson 5880
Illinois	Chicago	Edmund H Eitel[1]	20 N Wacker Drive	Andover 3600
Indiana	Indianapolis	Albert O Evans	Circle Tower Bldg	Market 9411
Kentucky	Louisville	James T Howington	400 Todd Bldg	Wabash 6553
Louisiana	New Orleans	Louis House Clay	423 Canal Bldg	Raymond 2312
Maryland	Baltimore	T M Chandlee	1054 Baltimore West Bldg	Plaza 8170
Massachusetts	Boston	W P Homans	17 Court St	La 4250
Michigan	Detroit	James E. Wilson	7310 Woodward Av	Trinity 1-5500
Minnesota	Minneapolis	Willard F Kiesser	326 Midland Bank Bldg	Main 3248
Missouri	Kansas City	Charles B Shaeffer	Mutual-Interstate Bldg	Victor 7780
	St. Louis	Ward H Goodloe	943 Paul Brown Bldg	Central 3200
Montana	Helena	Oscar A Baarson	512 Power Block House	3270
Nebraska	Omaha	Victor H Black	512 Grain Exchange Bldg	Jackson 6466
New York	Buffalo	Paul R Smith	312 M & J Bank Bldg	Madison 3160
	New York	Sydney Hogerton	Chanin Bldg	Murry Hill 3-2520
North Carolina	Charlotte	J E MacDougall	Liberty Life Bldg	3-6194
Ohio	Cincinnati	Elmer C Henlein	34 E 4th St	Cherry 3740
	Dayton	Harold B Doty	819 3d Nat'l Bank Bldg	Hemlock 6321
Oklahoma	Oklahoma City	C F Aurand	414 Key Bldg	7-1551
	Tulsa	Alfred E Ballin	416 Kennedy Bldg	2-3284
Oregon	Portland	John Fred Bergesch	806 Bedell Bldg	
Pennsylvania	Philadelphia	George McGovern	Broad St Station Bldg	Locust 3400
	Pittsburgh	Charles F Cruciger	403 Fulton Bldg	Grant 2962
Tennessee	Knoxville	D K Porteous[1]	Goode Bldg	3-0791
	Memphis	John K Lester	2110 Sterick Bldg	5-7421
	Nashville	George S Gillen	1014 Stahlman Bldg	5-8525
Texas	Dallas	John B Joyce	Fidelity Bldg	Riverside 4561
	El Paso	Robert Stryker	223 Paso Nat'l Bank Bldg	Main 2881
	Houston	George L Noble Jr	1020 Electric Bldg	Central 7201
	San Antonio	Carl Pool	801 Majestic Bldg	Fannin 1475
Utah	Salt Lake City	Ralph E Bristol	248 S Main St	3-7676
Virginia	Richmond	F P Wilmer	10 S 5th St	7-2331
Washington	Seattle	William D Shannon	White-Henry-Stuart Bldg	Elliot 0-200
Wisconsin	Milwaukee	Frank J Tharinger	7048 Plankinton Bldg	Broadway 4440

[1]Acting manager.

Lime Production Hits New High by Beating 1940, Previous Top

Production of lime in the United States in 1941 attained an all-time high of 6,079,416 short tons, exceeding the previous high record of 1940 by 24 per cent. Of the total reported by producers to the Bureau of Mines, sales of quicklime, 4,489,257 short tons, were 28 per cent. higher than in 1940, representing a larger proportional gain than the 15 per cent. increase recorded for hydrated-lime sales. Prices in 1941, as measured by the average values at the producing plants, generally were higher than in 1940.

Consumption of agricultural lime increased 5 per cent. above that of 1940. Sales of hydrated lime for this purpose, approximately 58 per cent. of the total, rose above those of 1940, while the quantity of agricultural quicklime consumed declined about 3 per cent. Building-lime sales during 1941 exceeded those of 1940 by 5 per cent. and the unit value advanced 3 per cent.

Sales of lime for chemical and industrial purposes increased 35 per cent. over 1940, reflecting the tremendously increased activity in heavy industry fostered by the war program. Among the major chemical and industrial uses, the most notable gains were in metallurgical lime, 37 per cent., and in lime used by tanneries, 29 per cent. For the third consecutive year production of metallurgical lime set new records. The average price per ton increased 10 cents compared with 1940. Chemical-lime sales to most of the other consuming industries increased over 1940. Hydrated lime comprised 17 per cent. of the total quantity of lime sold for chemical and industrial uses in 1941.

Refractory lime (dead-burned dolomite) increased 23 per cent. in quantity and 32 per cent. in value.

The total number of producing lime plants was 314, three more than in 1940. The output of the leading producing states — Ohio, Pennsylvania, Missouri, and West Virginia—aggregated 60 per cent. of the total production of the country, with Ohio alone producing 25 per cent. of the total. Pennsylvania, Ohio, New York, and Illinois, the ranking consuming states, together accounted for 43 per cent. of the total consumption of lime in continental United States.

EDITORIAL

Competition After the War

IT has been a commonplace to speak of the American economic system, first as if it were essentially different from any other modern economic system and, secondly, as if it were founded on and motivated by the principle of free competition. Since it, like the systems of Britain, France and Germany (before Hitler), is founded on the principle of capitalism, there is nothing, other than the extent of its control of economic life in this country, that marks it as American. Another fallacious belief is the theory that this system, by whatever national name we choose to call it, is somehow regulated by the principle of competition and that this interplay of spontaneous desires to serve the interests of the community or country is given free reign under the economic organization that prevails. While this fallacy is now more widely recognized as such than at any time in the last quarter century, it is still too generally accepted as a statement of fact, something that is so obvious as to be above challenge. But the economic developments that have crowded rapidly one on another in recent decades have gradually exposed to view the growing restrictions placed by monopoly on the free play of competition, which the economists of old held up as the mainstay of social life and the central pillar of social justice. More people have come to see that competition is rarely free even in the simpler economic activities and has certainly all but disappeared in the more complex forms.

In normal times the burdens of monopoly, great as they are, are not so heavy as they become in war. When peace prevails, those burdens exact their toll in the form of needlessly high prices to the consumer, restricted buying opportunities through the limitation of the number of grades of goods available on the market, and oppression of small and economically weak producers. But when war comes, the control of monopoly makes itself felt in new and more severe ways. The life of an entire nation may be endangered, its citizens may be put in physical jeopardy, its future may be misshaped and even destroyed by the conditions that have been created by the development of monopolistic control. What is but economic tyranny in time of peace becomes physical and psychic tyranny in time of war. When the very existence of a whole people may be at stake, the forces of monopoly which it has allowed to thrive in its midst may prove to be one of its most formidable enemies, one that hampers it in the defense of its life and property, that sabotages the very society that gave it birth and kept it alive.

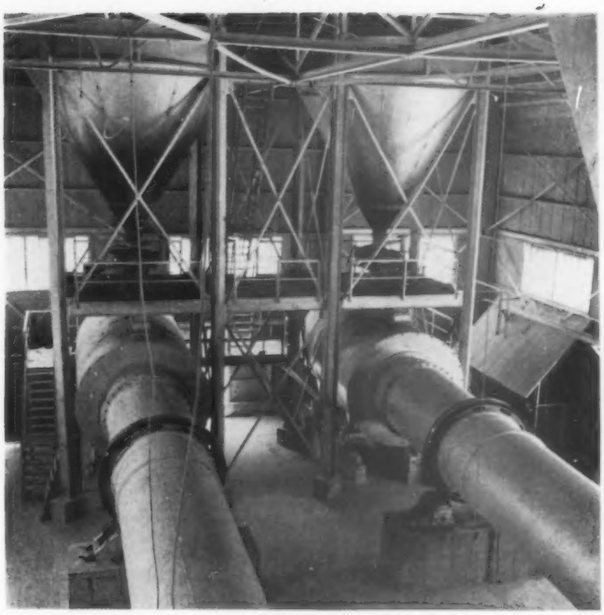
Thurman Arnold, assistant attorney general of the United States, referred to this grave danger when he said recently before a gathering of business men and trade-association executives at Northwestern University that "We must abandon the system of security economics in which the investments of key industries are protected by cartels and restricted production for our own system of economic democracy and competition." When he spoke of "security" economics he meant, of course, the economic system that provides security, not for the public at large, but for the "investments of key industries."

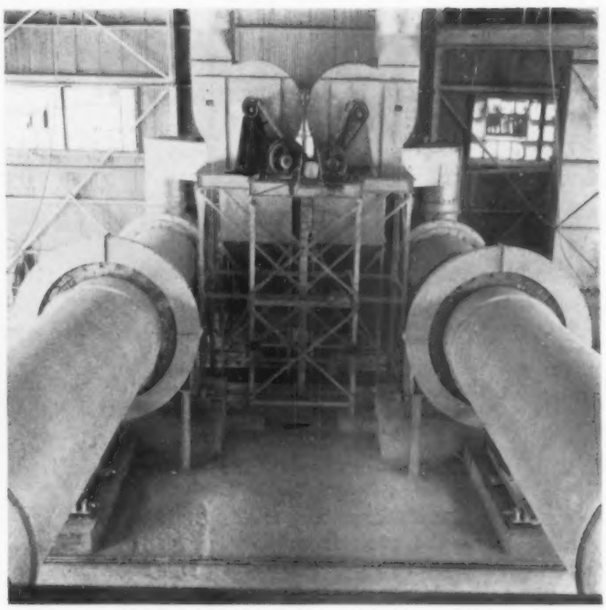
Much of the crucial shortage of basic materials he attributed to the common practice of stabilizing prices through the restriction of production, a method that can be practiced only when producers combine for the exercise of monopolistic control. Such control inevitably results in the "scandalous inefficiency" of which he accused the steel and transportation industries.

This war, more than any previous war, is forcing us to produce vital war materials in the greatest possible quantity and to develop new methods and new materials with great rapidity. In the performance of such a tremendous task we can not, of course, tolerate any kind of inefficiency whether "scandalous" or only moderate.

AND, what about the post-war period? Must we, as Mr. Arnold says, return to a more competitive economic system, not alone to win the war, but to have prosperity after the war? We can achieve the confidence that this war will improve the economic situation of most people—a confidence that inspires the peoples of the Axis nations—"by working for a system of free competition in which the savings of the new industrial development are passed on to the consumer". The system of monopoly control of basic materials under which we, in common with the peoples of many other countries, have lived has not done that and is not doing that even under the stress of present national needs. Expansion in the country's steel-producing facilities, for example, has been opposed by steel-company representatives on the War Production Board who feared the creation of new production capacity that might offer competition to existing companies after the war. America "entered this war with only 300 commercial airplanes, in spite of the fact that we were the greatest commercial-plane producer in the world" and "despite the institutional advertising to the contrary", said Mr. Arnold. The shortage was due, he said, to the fact that "there were too many planes produced to make big profits at established rates for the airlines". "After the war", he added, "we'll have so many planes, so many ships that our transportation problems will be solved, provided we do not feel we must destroy planes and ships to protect railroads, plane companies or ship-building companies."

A return to free competition—a competition free from monopoly control—is one of the great needs of the hour. It has been one of the great needs of the world in increasing degree for the last four or five decades. If this war accomplishes that among other things it will have justified some of its tremendous costs.





The two rotary driers showing the feed and discharge ends. Table feeders above in picture at left; dust-collectors above in view at the right.

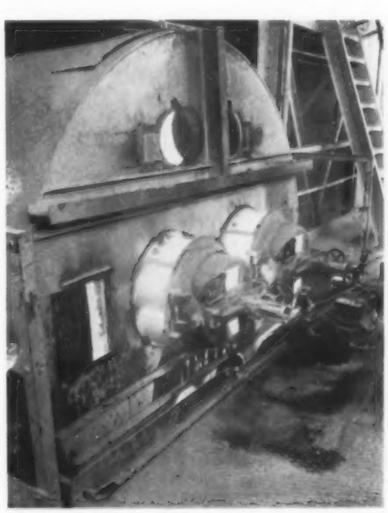
Fuel, Power and Labor Costs Decline as New Drying Plant Goes in Service

THE history of the Florida pebble-phosphate operations of the American Cyanamid Company and the improvements which have kept them at "peak" efficiency well illustrate the development of the industry in general in that area. Extensive changes in methods and equipment have been made by the company from time to time and new plants have been built when necessary. The latest addition was a new drying plant at Brewster, Florida, where the company's operating staff is located. This plant supplanted an older drying plant at the same location. The company also has a new washing-and-flotation plant under construction which will be in operation later in the year.

View looking down on dust-collectors and fans.

Like most other companies in this area, the American Cyanamid Company located its original plants in one place near the deposits then worked and built a town for its employees there. The town in this case, Brewster, was founded about 25 years ago. It is in a low-grade-ore area and, as the demand for higher-grade material developed, mines and washers were opened at increasing distances from the town and main plant. The phosphate rock was, and still is, brought to Brewster for drying, grading and shipping. This material is hauled over the regular railway systems of the Seaboard Airline and Atlantic Coast Line Railways. The only source of supply now in operation is a mine and washer at Oak Ridge, 11 miles northeast of Brewster. The former mine at Old Colony, about 20 miles southeast of Brewster, has been abandoned and the washer and flotation plant there have been dismantled and most of the equipment used in the new washer and flotation plants mentioned above. These are located at Saddle Creek, about 26 miles northeast of Brewster and only 5 miles southeast of Lakeland. Much new equipment is also being installed in these plants.

The washers produce plus-20-mesh pebble rock and the flotation-plant concentrates are from 20- to 200-mesh in size. These products



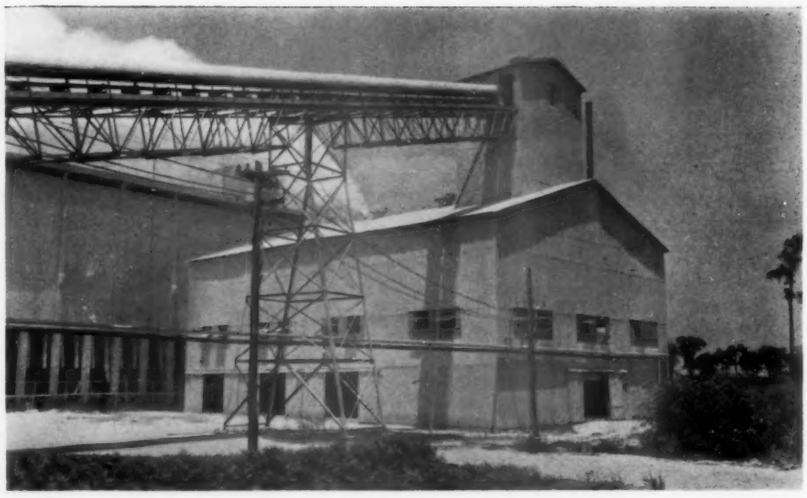
Dual oil-burners on one of the rotary driers.

By W. E. TRAUFFER

are hauled to the drying plants, where they are dried separately. The wet materials are hauled in 35- to 45-ton (dry basis) bottom-dump cars, from which they are dumped into four separate compartments of a 5,000-ton concrete bin.

Each one of the twelve 24-inch by 51½-foot transverse belt-conveyors under the bin is fed through six gates. Usually only one belt-conveyor is used at one time and it discharges the rock on a 24-inch by 129½-foot belt-conveyor alongside the bin. A 24-inch by 258-foot inclined belt-conveyor discharges the stone into either of two 30-ton steel tanks on the top of the new drier building. Link-Belt conveyors are used.

Traylor 48-inch-diameter table-feeders carry the rock from these bins to either of two 6- by 60-foot Traylor all-welded rotary driers, which are unlined but are equipped with lifters at their hot ends. Each drier is supported on two rings, each of which rests on two ball-bearing rollers, and is driven by a G. E. synchronous motor through a Falk reducer and gears. The driers have a slope of ½ inch to the foot and are operated at a speed of 15 r.p.m., which moves material through them in 12½ minutes. Each drier is fired at its feed end through a 12- by 14-foot combustion chamber, at its feed end lined with firebrick, by two Bethlehem-Dahl oil-burners. The Bunker C fuel oil is stored in two 10,000-gallon steel tanks outside the drier building and is preheated to a temperature of from 200 to 250 degrees F. by a 15-horsepower oil-fired boiler before it is fed to the drier burners.



The new drying building and raw-material conveyor.

Automatic weigher on dried-material belt.

This equipment is controlled from a board on the drier floor. A Brown Potentiometer pyrometer records the rock temperature in both driers and their exit-gas temperatures. Another Brown recorder registers the temperature and hourly consumption of the oil used by each drier. A dial also shows the amount of stone leaving the drier on the hot conveyor.

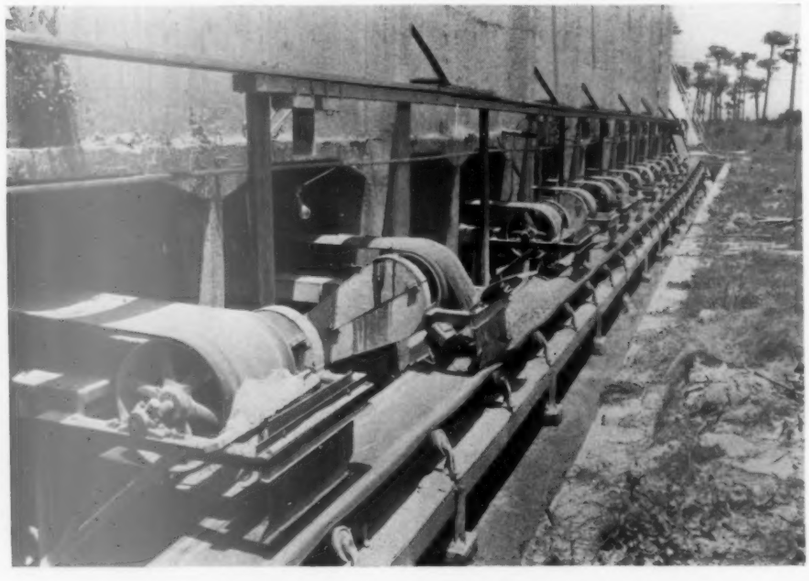
The discharge end of each drier is connected by a duct and hood to one of two Western Precipitation 54-tube Multiclone dust-collectors. The draft from each drier through its collector is induced by a Buffalo Forge Number 90 Type MX fan, which is driven through V-belts by a 50-horsepower motor. Each fan exhausts to the atmosphere through an individual steel stack.

In operating these driers a temperature of from 2,600 to 2,800 degrees F. is maintained in their hot zones and the rock is discharged at about 130 degrees F. The waste gases enter the Multiclones at about 220 degrees F. The rock is reduced from a moisture content of about 16 per cent. to 1 to 1½ per cent. with a fuel consumption of 3.3 gallons of oil per long ton of dried product.

Two tests recently conducted by the company further indicate the efficiency of the driers and of the dust-collectors. In the first test storage flotation concentrates were used and a combined output of 130 long tons per hour was obtained from both driers. Each Multiclone handled 20,600 c.f.m. of gases with a pressure drop of 2 inches of water. Together they caught 8,340 pounds of dust per hour, or over 95 per cent. of the suspended solids. About .02 per cent. of the total drier feed was lost as dust.

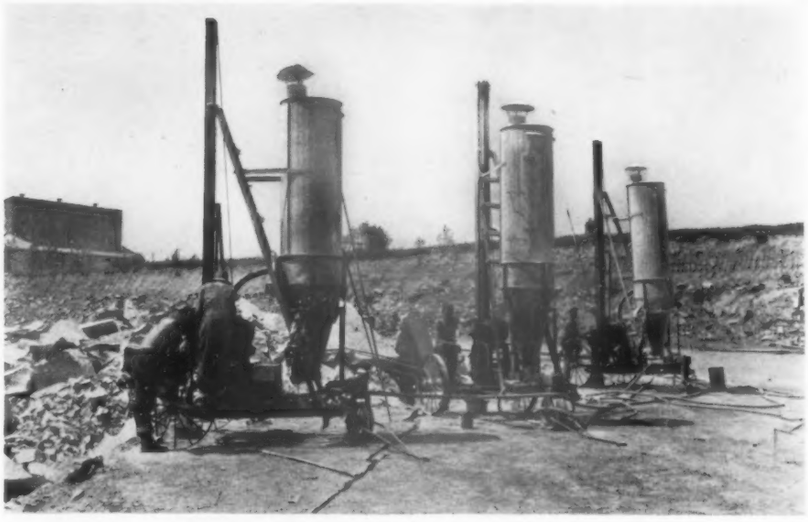
In the second test washer rock was dried at a total capacity of 90.5

(*Continued on page 57*)



Twelve reclaiming conveyors under the raw-storage building and feed conveyor to drying building.

Operator Achieves Goal of Dust-Free Conditions in Both Quarry and Plant



Three of the wagon-drills equipped with dust-collectors operating in quarry.

MUCH has been said but comparatively little has been done about the dust nuisance in crushed-stone plants and quarries. The state of New York has led the way in an effort to abate this nuisance and producers in that state have probably made the greatest strides in that direction. A dust code has been in process of preparation for several years there and was to have become effective July 1, 1942. The difficulty of obtaining the necessary equipment and the shortage of electric power, however, led to the

By W. E. TRAUFFER

indefinite postponement of the effective date, perhaps for the duration of the war.

At least one producer has made progress with one of the most complete and effective dust-collecting systems the writer has ever seen in a crushed-stone plant. The Federal Crushed Stone Corporation installed its first dust-collector in its plant at Cheektowaga, 7 miles east of Buffalo, New York, in 1931, shortly after the plant was built. Since then it has made a series of improvements which resulted in the present system. About 6 years ago the company devised special collectors for the wagon-drills used in its quarry and these, with minor changes, are still being used successfully.

The original Multiclone collector in the plant was connected by ducts to the secondary crushers and two vibrating screens. This system collected a large amount of dust at these points but was not of sufficient capacity to clean its exhaust air thoroughly. An attempt was made to do this by exhausting into a plain box expansion chamber. This helped some, but was still not satisfactory. The next step was to install cloth panels over the three plant dust bins and to exhaust the air from the expansion chamber into the bins. The air was then exhausted from the bins through these panels. This worked better but the panels did not have sufficient filtering area.

In order to get sufficient area the bins were tightly covered with floors and dust-collector bags were installed with their bottom ends connected to openings in these floors. At the same time a second fan was installed and this was connected to several additional points in the plant. The dust drawn off by this fan went to these bins along with the fine dust from the expansion chamber.

This worked very well but one more step was necessary to achieve the desired results—the construction late in 1941 of a bag-collector building to replace the expansion chamber. The original Western Precipitation Corporation Multiclone now receives dust through a series of pipes from the four Allis-Chalmers 10-inch Newhouse gyratory secondary and reduction crushers and from the discharge end of the conveyor which returns the oversize to them. A 12-inch pipe is

Clese-up view showing manner in which dust hood on drill is connected to fan.

Secondary-crushing department with bag-collector building and dust silo in background.

connected to hoods which are under two of the sizing screens above the bins and remove the dust from the stone. The 54-inch Buffalo fan, which was formerly installed ahead of the Multiclone, is now between it and the bag-collector building. The change from pressure to suction in this collector is said to have improved its efficiency and that of the remainder of the system.

The 85-per cent.-through-200-mesh dust collected by the Multiclone drops into an inclosed bucket-elevator from which it is discharged into a 22-foot diameter by 26-foot concrete-stave storage silo which has a live-storage capacity of 125 tons. This product can be loaded through a bagging machine into 100-pound multi-wall paper bags or it can be loaded in bulk into trucks. It is sold as a filler for asphalt plants, but some is sold for liming soil. About 10 to 15 tons of this dust is collected daily when the plant is operating at 1,800 tons in 8 hours.

The finer dust exhausted from the Multiclone goes into the bag-collector building. This consists of a reinforced-concrete bin structure, 20 feet by 26 feet and 12 feet deep, which is covered by an air-tight

This view shows the dust-collector with intake at left and silo at right.

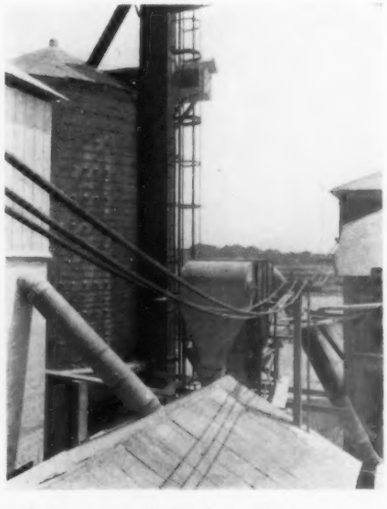
wooden floor. Holes are cut in this floor for the bottoms of the 91 collector bags which are suspended from the roof of the superstructure over the bins. As each bag is 11 feet long and 6 feet in circumference this building has a total cloth area of about 6,000 square feet. The pressure in these bags is about ⅛ pound and the air released from them is exhausted through the eaves of the sheet-metal superstructure. Openings at the base of the superstructure help to ventilate the bag room.

This building collects about 1½ tons of dust daily and this is sold

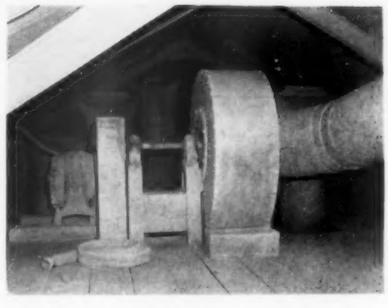
Arrangement of bags for collecting dust over the third dust silo.

for agricultural use only. All this dust will pass through a 200-mesh screen and most of it through a 325-mesh screen. This product is discharged from the bin into trucks through leak-proof sliding gates of original design.

The screening department of the plant is supported on a steel structure and on two rows of 7 concrete-stave storage silos or bins, each of which is 22 feet in diameter and 40 feet high. Two silos at the end of one row are used for the first and second stages of dust collection. The end silo in the other row is used for the third or final stage. The three silos are covered by floors which have openings for the collector bags that are suspended from the roof of the building. These bags are 72 inches in circumference and they vary in length from 5 to 12 feet in order to fit under the roof. The total



Another view of the dust-collector intake and silo.



Fan which draws dust from screens to bags pictured above.

bag area over these three bins is 7,300 square feet.

Of the 11 screens in the plant two are connected to the dust-collecting system just described. Two others, used for special fine sizing, are not connected. Most of the other screens have collecting hoppers which are connected to the suction side of a 48-inch Buffalo fan. The fan blows the dust-laden air into the silo, which is used for the first stage of collection through a pipe which projects it downward. An outlet pipe on the other side of the bin carries the remaining air and dust into the second bin. Another pipe connects to the third bin in the same way. This system operates very satisfactorily but would be even better with a few more fans in the circuit and connections to additional screens and other points of dust origin. These fans, however, can not be obtained at present.

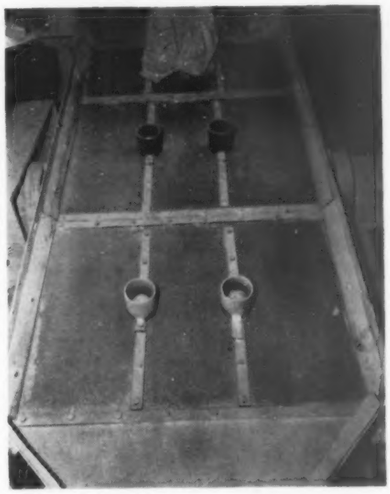
The first bin catches about 8 tons daily of coarse dust, of which 85 per cent. will pass through a 200-mesh screen. The second bin collects about 2½ tons daily of dust which contains considerable minus-325-mesh material. This is sold as farmers' meal. The fine dust col-

lected in the third bin at the rate of 1½ tons daily is also sold for liming soil, but does not bring as high a price as the coarser grades. Each bin has a live-storage capacity of about 250 tons of dust.

The bags over these bins and in the new bag building are cleaned each morning before operation of the plant is started. A man walks between the rows of deflated bags and shakes them thoroughly.

Crushed-stone producers outside the state may recall what New York state producers well remember about efforts to enforce rock-drill dust-collection. About six years ago the state ordered producers to stop drilling until collectors were installed on all dry drills.

The Federal Crushed Stone Company had previously installed collectors of original design on the Ingersoll-Rand X71 wagon-drills used for primary drilling. Electric motors were originally used to operate the Buffalo Forge Number 21 collector fans but were soon discarded because it was not considered safe to have electric wires near explosives. These fans are now driven through Dayton Cog Belts by No. 600 Ingersoll-Rand air motors which have the further advantage of speed adjustment through a simple valve.



Rapping devices on one of the 20-mesh screens.

The fan on each drill is connected to a 15-inch-diameter by 7-inch-high circular hood which fits over the drill steel and is sealed with a rubber flap. This size hood picks up only the dust fine enough to be dangerous, leaving the coarser dust on the surface of the rock. A smaller hood of cone-shaped design is used when all the coarse and fine drillings are to be picked up. This makes an unnecessarily large quantity of material to handle.

Collecting hood and pipe at discharge of secondary crushers.

The fan blows the dust-laden air into a small cyclone at the bottom of the collector which is attached to the drill frame. The coarse dust settles into a compartment at the bottom of the collector. The dust too fine for the cyclone enters a 6-foot-high cloth bag above it. The dust on this bag is shaken down into the dust compartment from which it is discharged once daily through a sliding gate. The bag is inclosed in a cylindrical sheet-metal housing which has a weather-proof vent through which the air is released. Each drill collects about 50 pounds of dust daily.

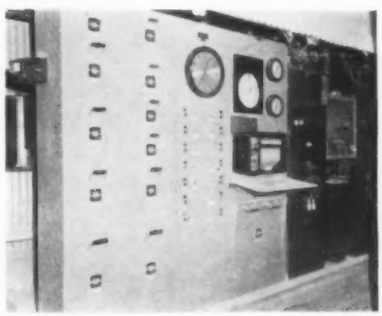
The company has 6 wagon-drills equipped with these collectors and two other drills in reserve. Usually 5 drills are in use at one time. These collectors have been tested and approved by the New York State Board of Standards and Appeals.

The credit for these efficient dust-collecting systems is due Gordon E. Warburton, superintendent, and H. M. McNabb who designed them and supervised their construction. They are also responsible for many other operating improvements in and about the plant. One of the best of these is the method devised for keeping fine-wire screen cloth from blinding. Considerable trouble had been experienced with two vibrating screens used for 20-mesh separations, especially in damp weather. The problem was solved by means of a rapping device which automatically keeps the openings clear when the screen is in operation. The appliance consists of a 5-inch piece of 4-inch-diameter pipe set vertically and having a metal strip welded across its bottom end, which is bolted to the screen panel strip. A 3-inch steel ball is placed inside the pipe and furnishes the rapping action against the metal strip. Two such devices are used on each screen panel and six are used on a 4- by 10-foot screen.

Cyanamid (from page 54)

long tons per hour. The Multiclone characteristics were the same but a total of 9,720 pounds of dust was collected per hour, or over 95 per cent. of the suspended solids. Less than .12 per cent. of the rock fed to the drier was lost as dust. In this test 98.5 per cent. of the dust lost was minus-200-mesh in size.

The product of the driers and the dust collected by the Multiclones are discharged on the same Link-Belt 42-inch by 31-foot pan conveyor. A 43-foot Link-Belt inclosed double-chain bucket-elevator drops the dried material on a 30-inch by 49½-foot horizontal belt-conveyor



Control board from which the plant is operated.

operated in conjunction with a Merrick Weightometer which records the dry weight of material going into the 30,000-ton capacity storage building. An 18-inch by 64-foot belt bucket-elevator discharges this material into a tank, from which special cars distribute it to the four compartments of this building. Cars are loaded for shipment on four tracks under this building. As there is very little water transshipment of phosphate at present, most of the shipments are being made in box cars.

The new drying plant is being operated by a foreman and a crew of 3 men—one at the wet bins, one in the drier building, and one in the storage building. This represents a saving of 50 per cent. in labor man-hours compared to the old plant. There is also a saving of 40 per cent. in power consumption and 25 per cent. in fuel consumption per ton of dry rock produced. Each of the ten 4- by 32-foot driers in the old plant dried 12½ tons of pebble rock or 15 tons of concentrate per hour but did not function very efficiently on the latter.

★ ★ ★ ★ ★

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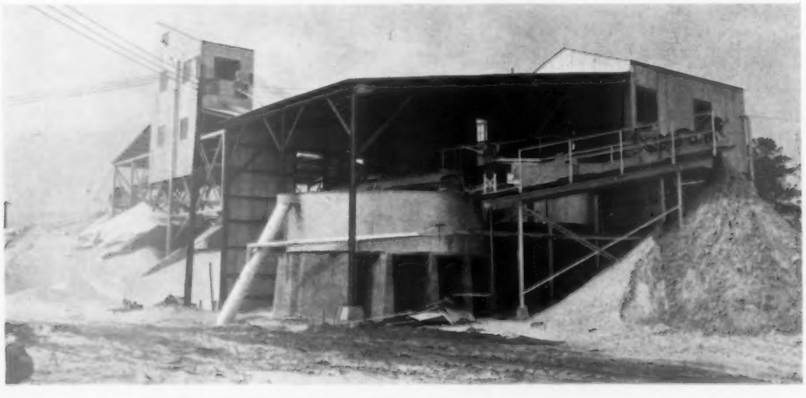
Leading Producer of Industrial Sand Adds Plant at Deposit in New Jersey

Plant Number 1, showing three hydraulic classifiers in row and sand cone on tower at left.

The older drying plant with drier, vibrating screen and car-loading elevator.



New Number 2 plant, showing thickener, hydroseparator and fine-sizing rake in foreground.

THE Whitehead Brothers Company of New York City, one of the largest producers of industrial sands, in 1941 celebrated its 100th anniversary. On October 25 of the same year it put in operation at Dividing Creek, New Jersey, a new plant which sets a standard for

One of the rake classifiers in Number 2 plant; pump in foreground.

the industry. This Number 2 plant supplements another plant (Number 1), which was built on the same property late in 1937. Although both plants are fed similar raw material and make substantially the same products, there are interesting differences in the methods and equipment used. On the same property two drying plants and a blending plant were also built. Together they have a capacity of over half a million tons annually.

The company operates numerous plants in New Jersey, New York state and New England. Most of them are of the temporary type which can be moved readily from one deposit to another. Most of the output is foundry sand but other types of industrial sands are also made. The foundry sands are made bonded and unbonded, and washed and unwashed, in the various grades specified by the American Foundrymen's Association.

By W. E. TRAUFFER

In 1937 the company acquired a 4,000-acre property between Millville and Dividing Creek, New Jersey, in one of the country's richest silica-sand-producing areas. The sand in this deposit is a very pure white silica with a very uniform grain size and, except in a few spots, is almost entirely devoid of gravel. The water level is from 10 to 12 feet below the top of the deposit and material is being excavated to a depth of from 35 to 40 feet below the water level. In stripping this deposit the trees and underbrush are first removed. A Caterpillar D7 tractor and an 8-cubic yard Le Tourneau scraper remove the 3 to 4 feet of overburden.

Plant Number 1.—A dredge with a 4-inch Millville centrifugal sand pump supplies material to Plant Number 1 from a pond. The dredge-line discharges at the top of a tower into a conical scalping screen which removes all the plus-14-mesh material. The minus-14-mess sand goes through a flume to a series of three Link-Belt Shaw classifiers, the first one 30 inches and the other two 24 inches in diameter. These make three grades of sand. The overflow from the third classifier goes to a 12-foot Link-Belt Rotoscoop which makes a fourth grade. These four grades of sand are discharged on ground storage piles. The Rotoscope overflow is flumed to a 20-foot-square steel settling basin which recovers an extremely fine grade of sand. This is stock-piled

Single-deck screen which follows the drier in the new drying plant.

by means of a swinging-boom belt-conveyor.

The equipment mentioned makes five different A.F.A. grades of sand at one time. Two additional sizes can be substituted by changing the adjustment of the first Shaw classifier. These seven grades of A.F.A. fineness numbers range from 38 through 95.

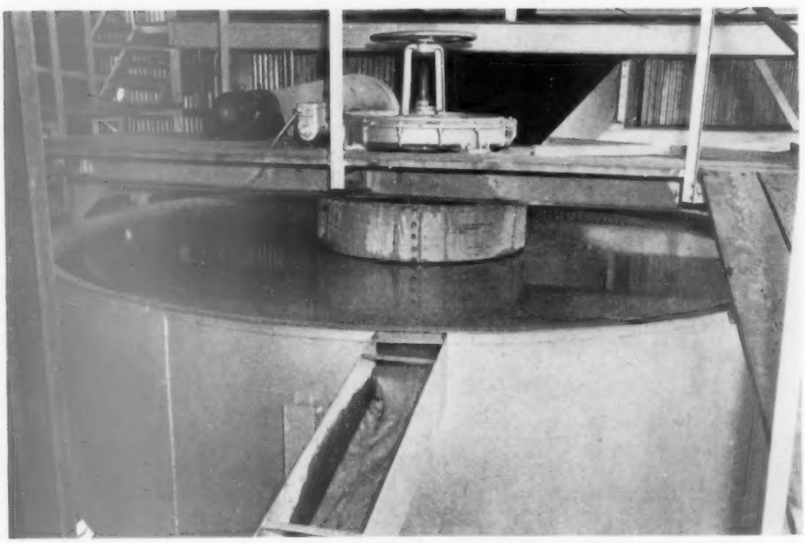
The ground storage is divided into compartments by concrete partitions which also support the steel frame-

Interior of new drying plant, showing drier with its oil burner and vibrating screen. Drier-feeding elevator in foreground.

Plant Number 1, showing mechanical classifier and three hydraulic classifiers.

Plant which produces foundry gravel and bonded sands.

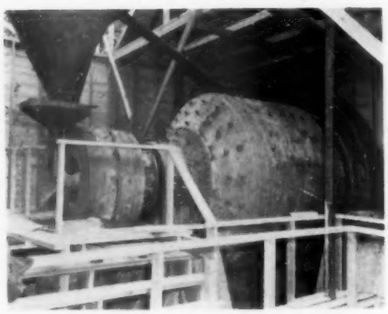
Seventeen-foot hydroseparator and thickener in plant Number 2.



Hydroseparator which desilts the minus-14-mesh sand from the screens in plant Number 2.

The dredge, which serves plant Number 2, opening a pond.

work of the plant. The combined storage capacity is about 3,000 tons. There are also arrangements for feeding the coarser sizes to two 3,000-ton auxiliary stock-piles. A Wilfley sand pump can feed either of the two coarsest grades of sand to a 5-foot Allen cone on the top of a tower from which it is discharged on one of the piles. A similar arrangement feeds either the second or third grade of sand to the other pile. These cones further insure the



Conical mill and feeder operated in connection with plant Number 2.

removal of finer sand from these grades.

Plant Number 2.—The new Number 2 plant is supplied from another pond by a dredge which also has a 4-inch Millville pump. Its dredgeline discharges into a box which splits the flow to a pair of Link-Belt conical screens, which reject any plus-14-mesh material. The minus-14-mesh sand is discharged into a 17-foot diameter Dorr hydroseparator which is used primarily for desilting. A 4-inch Wilfley pump feeds the desilted sand to a tower from which it is discharged into a Fahrenwald 8-pocket sizer where fresh washing water is added.

The eight distinct grades of sand made by the sizer can be discharged separately or in any desired combinations to any of or all the four Dorr rake classifiers. A 2-foot single-rake classifier makes the finest size, a 3-foot double-rake unit makes the second size, and two 4-foot double-rake machines are used for the two coarsest grades. Their four dewatered products are discharged into ground-level storage compartments having a total capacity of 6,000 tons.

The overflows from all the rake classifiers, the Fahrenwald sizer and the hydroseparator go to a 24-foot Dorr thickener. The overflow from this machine is wasted, while a Dorr Duplex diaphragm pump feeds the product to a Dorr 4-foot double-rake classifier which makes the fifth and

finest grade of sand. This is also discharged to ground storage. reduce any of the coarser grades.

At both plants the finished products are loaded from the piles into gondola cars for shipment by 3 Northwest ¾-cubic yard shovels.

Drying Plant.—The first of the two drying plants on this property was built late in 1940 and the second one late in 1941. They are identical in design and are located on the opposite sides of a loading track so that both can discharge simultaneously into the same box car.

The graded sand to be dried is hauled by trucks from the stockpiles and is discharged at either plant into a hopper. A reciprocating feeder discharges the sand to a belt-bucket elevator which feeds the 5- by 30-foot Millville rotary drier. The original drier is fired by a Max-in-Premix burner and the newer one by a Hauck burner. Each plant has an individual 12,000-gallon fuel-oil storage tank. In each plant the sand is discharged from the drier over a single - deck Link - Belt vibrating screen with 10-mesh openings. These two screens are usually stationary as the dry sand flows readily through them. When some of the sand is slightly damp or lumpy, the screens are operated to break the lumps. Any occasional lumps rolling over the screen go into a hopper from which an elevator loads trucks for haulage to waste.

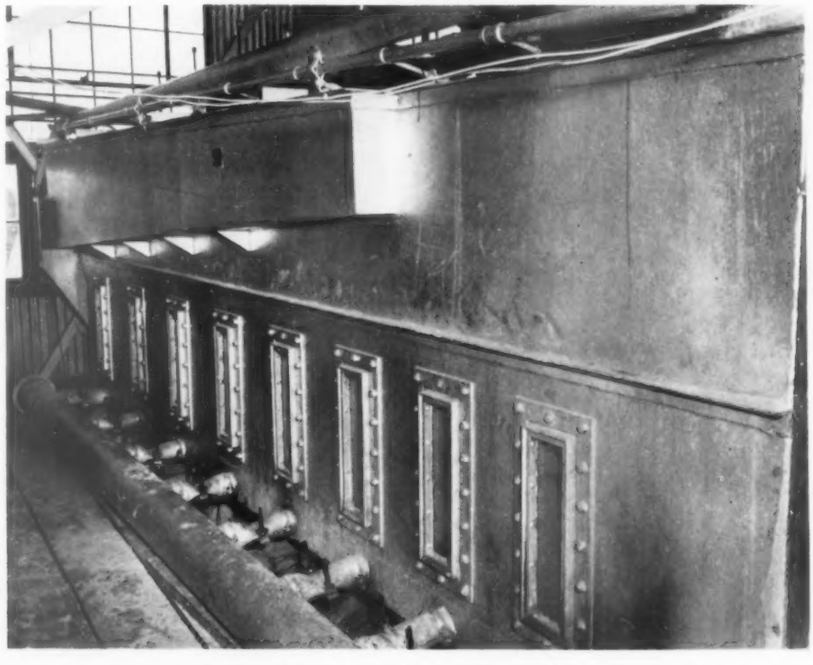
Four-inch pump which feeds sand from the hydroseparator to the sizer in plant Number 2.

The sand passing through the screen goes to the car-loading elevator from which it is discharged through a spout on a box-car loader.

Gravel Plant.—In 1941 the company also put in operation on this property a plant for the production of foundry gravel or bonded sand. When sand is to be blended, two or three sizes, as desired, are loaded into trucks in the required proportions at one of the sand plants. At the blending plant the sand is discharged from the truck into a hop-

(*Continued on page 63*)

Truck hopper for the gravel plant, with disintegrator building and conveyor to screens at right.



The 8-pocket sizer which makes finished products in the Number 2 plant.

Plant Number 2, showing hydroseparator building in background.

Changes Boost Output Ten Fold With Only Two Workers Added

Present plant of The Genesee Sand & Gravel Corporation, Buffalo.

FROM a total production of 35,000 tons of sand and gravel in 1933 with 8 employees to 350,000 tons in 1941 with 10 employees is the record established by Genesee Sand & Gravel Company, headed by R. P. Rupp, Buffalo, New York. The original gravel pit, when Mr. Rupp took possession, was in financial difficulties. Friends advised it would be impossible to make it a success, but long experience in road building had taught him there were many short cuts in production methods if the proper ingenuity was used, and he purchased the pit.

After a careful analysis of the pit and its equipment, Mr. Rupp came to the conclusion he could replace the slow-moving drag-scrapers with oversize - tired light trucks and shovels to convey the sand and gravel to the hoppers. Because of the various types of material in his deposit, the quick shift of the shovel to the type of material desired proved to be a major time-saving factor.

An original classifier for grit was developed. This consists of a series of three 2-foot paddle sand-drags with a 41½-foot overflow which takes care of water from a 6-inch pump with an 8-inch inlet and outlet. This gives him fine, medium and coarse grit all in one operation. Another innovation is an interesting arrangement of screens by which 12 different kinds of material can be produced without changing the size of any screen cloth. The gravel screening is done on two Niagara triple-deck vibrators. To save time and simplify the production of roofing gravel, an original idea of screening this material into a chute has been devised. This separates the roofing gravel and also eliminates the ¼- and ⅜-inch sizes from that used for concrete.

Shovels and trucks operating in the pit.

Grit classifiers equipped with 2-foot paddles.

A sand plant is also part of the pit, and plaster, brick and asphalt sands are produced without changing the screen cloths. This is accomplished by picking out the bank best suited for the particular type of material needed and putting one of the shovels at work on it. By means of the light, swift trucks much valuable time is saved and production increased.

Another innovation which demonstrates the efficiency of the pit is shown by the protection of the main conveyor belts. The sand and gravel are allowed to drop 1 inch from the feeder to the 24-inch belts. The impact from large rocks is thus eliminated and longer life for the

belt is assured. Having a completely-mechanized sand-and-gravel plant, the owners faced the problem of keeping all the equipment running efficiently. This meant, among other things, extreme care in lubrication, as road and pit delays not only caused a valuable loss of time but weakened the confidence builders had in the pit's ability to deliver material on time.

In 1937, after experiencing exasperating delays caused by mechanical breakdowns and unusual wear,

R. P. Rupp, owner, and one of his trucks.

Mr. Rupp gave special attention to the problem of systematic and adequate lubrication. He found his delays were eliminated, his profits consequently increased with the better service he was able to render, his volume of business showed a decided increase.

"Sand-and-gravel men," declared Mr. Rupp recently, "must make every move an efficient one if they are to be successful. We find that the lubrication of our five Northwest shovels, two gasoline Thews, one Koehring, the 24-inch Acme jaw crusher, the 22 electric motors, our ready-mixed-concrete trucks, as well as the many light trucks used in the pit, can all be done by using one brand of motor oil. This saves time in taking a monthly inventory of our lubricating-oil stock, and there is a decided saving in storage space in that we never have more than two drums of oil on hand at one time. It also means a saving in oil, since, regardless of how careful you are, there is always some loss from an open drum. The purchasing agent is particularly well pleased with the fact that one brand of oil does the complete job in that it eliminates much bookkeeping and red tape for him." The company has standardized on Ring-Free Motor oil.

Whitehead *(from page 61)*

per from which a reciprocating feeder discharges it on a belt-conveyor. This conveyor is pivoted so that it can discharge either direct on a second belt-conveyor or into a disintegrator of original design. This disintegrator is used only for sand which it breaks up and blends before discharging it on the second conveyor.

The gravel is obtained from a pit on the property and is brought by trucks to this plant. In this case the disintegrator is by-passed. The second conveyor feeds two revolving screens which remove any oversize material and discharge the finished products into a bin. A belt-conveyor under the bin is used for car-loading. When screening is not necessary, the material can be discharged from the second conveyor direct to the loading conveyor.

All these plants were designed by the company's engineering staff. They are built entirely of concrete and steel and the latest types of equipment are used throughout. General Electric motors, Millville elevators and feeders, Chain Belt Rex Stearns idlers are used exclusively. Cincinnati conveyor belting and Gates V-belt drives are used.

Shipments are made *via* the Central Railroad of New Jersey which connects with a ¾-mile siding at the plant. This siding has just been double-tracked and several cross-overs have been installed in order to facilitate car movements.

A fleet of eight trucks, all equipped with Galion steel end-dump bodies, is used for the intra-plant hauling operations which have been described.

New Truck-Mixers for Seattle Operator

The Klinker Sand & Gravel Company, Seattle, in the past year purchased ten Smith-Mobile 2-cubic yard agitators mounted on Ford trucks.

These replaced bath tub bodies which the company had used since it went into the ready-mixed-concrete business in 1934.

★ ★ ★ ★ ★

To keep 'em flying, keep on buying

Defense Stamps and Bonds

★ ★ ★ ★ ★

Accident Frequency Rate in Stone Quarries Falls

A slight reduction in the accident-frequency rate among men employed in quarrying and crushing stone was revealed for the year 1941 compared with 1940 by reports from companies that were enrolled in a yearly safety contest conducted by the Bureau of mines in cooperation with the National Crushed Stone Association.

Reports from companies that participated in the contest of 1941 covered 51 plants, of which 4 were underground operations and 47 were open quarries. Crushing plants connected with the enrolled quarries or mines were also included. The contest was the 16th consecutive safety competition conducted by the Bureau of Mines for the prevention of accidents in the crushed-stone industry.

Men employed at the 51 plants worked a total of 6,369,155 man-hours in 1941. Accidents during the year killed three men and injured 119, each injury resulting in at least 1 day of disability. The accident-frequency rate, covering fatal and nonfatal injuries, was 19.16, compared with 19.64 for the previous year.

Because of the three fatalities in 1941, compared with only one in 1940, the accident-severity rate increased in 1941, as each fatality is weighted as the equivalent of 6,000 days of disability. Hence, the severity rate, which covers fatal and nonfatal injuries, rose from 3.58 per thousand man-hours of employment in 1940 to 4.79 in 1941.

According to the rules under which the contest is conducted, the winner of the competition is the plant that establishes the lowest accident-severity rate. The winning plant is presented with a safety trophy provided by the *Explosives Engineer* magazine.

The 1941 award winner was the No. 3 mine of the Columbia Quarry Company, located at Valmeyer, Illinois. It operated 159,569 man-hours without a lost-time or disabling injury to any employee. This is the first time since the contests were inaugurated that the award was won by an underground mine. This mine also received honorable mention in 1931, 1932, 1933, and 1936 for operating with perfect safety records.

Twenty plants, 2 more than in 1940, were awarded honorable mention for operating throughout the year with accident-free records.

Court Rulings Clarify Worker Status Under Federal Labor Standards Law

By LEO T. PARKER

CONSIDERABLE discussion has arisen from time to time over the question: When and under what circumstances are mining companies within the provisions of the Fair Labor Standards Law? It is important to know that modern higher courts are resolved to interpret federal wage laws and other interstate rules and regulations broadly so that many employers, who honestly believe that their employees are not within the provisions of the act, eventually may find themselves confronted with heavy back-wage allowances, attorney fees, and other heavy incidental expenses.

A few months ago it was generally believed by the average layman that "interstate" employees, entitled to wages specified by the Fair Labor Standards Act, were those actively and *exclusively* engaged in production of products for interstate commerce. However, according to modern higher-court decisions, this is not in any sense true.

The law on this subject now is fairly well established, and, therefore, producers should realize their obligations instead of remaining under the false idea that certain employees are under intrastate regulations, although such employees are willing to work for relatively low wages. In other words, with respect to interstate employees, within the provisions of the law, it is best that employers now realize their legal status and eliminate future legal controversies, suits, loss of time and heavy expenses. Since this subject is one having special interest to all readers we shall briefly review several late higher - court decisions which illustrate variations of the law.

Watchman Is Interstate Employee.—Considerable discussion has arisen regarding the legal status of a watchman employed by an employer engaged partially in interstate commerce. It has been contended by many that a watchman is not an interstate employee because his work is confined strictly to intrastate duties. However, modern courts refuse to uphold this contention.

For example, in S. H. Robinson & Company, Inc., *v.* La Rue, 156 S. W. (2d) 432, the company is engaged in purchasing, storing, and selling merchandise. La Rue was employed by this company from January 1, 1940, to September 14, 1940, his duty being to watch these goods during the night hours as they were unloaded from trucks, while stored on the premises, and when loaded in freight cars for shipment before the cars were moved. La Rue filed suit against the company to recover back wages, penalty and attorney fees on the ground that the company had not paid him as an interstate employee on the wage basis specified in the Fair Labor Standards Act of 1938.

The counsel for the company argued that since La Rue was employed only as a watchman he was not engaged in interstate work and, therefore, was not entitled to receive wages based upon the Federal law. However, the higher court held the company bound to pay La Rue $355 back wages and $300 attorney fees. This court said:

"While in a technical sense a watchman does not produce goods, the trend of judicial decisions seems to be that such an employee comes within the spirit of the federal act and renders a service so closely connected with interstate transportion as practicaly to be a part of it, particularly since the act is remedial in character and must be given a liberal construction."

The higher court refused to penalize the company, and said:

"The penalty imposed by this act is harsh and severe, and where, as in this case, a doubt exists by the employer as to whether it applies to a particular employee, we are not disposed to place a greater burden upon the employer than is necessary in order to comply with its mandates."

See Southern, 120 Pac. (2d) 880, California, where the seller and the employee worked intrastate on equipment used in interstate commerce. The higher court held him to be an interstate employee.

In Copley, 120 Pac. (2d) 879, it was held that a carpenter who repairs equipment used partially in interstate commerce is an interstate worker.

Wage Case Not Decided.—Various higher courts have held that truck drivers, whose duties largely relate to interstate commerce transactions, may demand and receive from their employers wages specified in the Fair Labor Standards Act. However, their work must be directly related to interstate transactions.

For example, in Gibson *v.* Glasgow, 157 S. W. (2d) 814, a man named Gibson was employed as a truck driver, delivering goods from his employer's place of business in Tennessee to customers located in the same state. Also, he was required to and did assist his employer in unloading oil from freight cars and hauling it to the employer's warehouse. These freight cars were the property of common carriers who had transported the oil in interstate commerce from other states to the warehouse. Gibson based his suit to recover wages specified by the law on the fact that unloading the oil and transporting it to his employer's warehouse was an interstate transaction. This court refused to render a decision until further testimony disclosed the extent of his work in unloading oil from interstate shipments. This court said:

"The complainant concedes that an employee, who claims the benefits of the Fair Labor Standards Act, must show that a substantial portion of his time was devoted to the production of goods in commerce. . . Complainant's (Gibson's) bill in so many words avers that 'his duties consisted principally' in the driving of this truck in intrastate commerce. There is no showing as to how much of his time was occupied in unloading goods from freight cars and in placing goods on defendants (employer's) platforms to be shipped in interstate commerce. If these latter activities were only occasional or unusual, under concession of counsel, the complainant would not be entitled to recovery herein."

On the other hand, see 33 N. Y. S. (2d) 42, in which a manufacturer shipped from outside the state certain merchandise which was loaded on a truck at the freight depot and distributed to intrastate customers. The higher court held the truck driver entitled to the wages specified in the federal law.

Federal Compensation Law Broadly Construed.—It is important

to know that where an employee of a common carrier suffers an injury while engaged in work which brings him within the provisions of the Federal Employers' Liability Act, no legal proceeding to recover for such injury may be maintained under the State Workmen's Compensation Act.

For illustration, in Piggue *v.* Baldwin, 121 Pac. (2d) 183, the duty of a common carrier's employee, who worked in Kansas, was to clean up the equipment used partly to carry interstate traffic. He was killed while performing such duty.

In holding that the dependents of the employee could not recover for the death under the Kansas Workmen's Compensation Act, the court said:

"The discussions in Congress indicate that it was the intent of the lawmakers to bring within the scope of the Federal Employers' Liability Act all employees whose work at the time of injury was *not* in actual interstate transportation or a part of it, but any part of whose work was in *furtherance of interstate commerce,* or in any way affected such commerce directly, closely and substantially."

Obviously, since employees in this and similar classifications are engaged in interstate work, they are entitled to payment of wages specified in the federal wage law.

Study of Law.—Since many readers may not be familiar with the phraseology of the federal wage law, we shall review its provisions.

For example, the United States Department of Labor Interpretative Bulletin No. 1, at pages 4 and 5, says: "The second category of workers included, those engaged 'in the production of goods for interstate commerce,' applies, typically but not exclusively, to that large group of employees engaged in manufacturing, processing, or distributing plants, a part of whose goods moves in commerce out of the state in which the plant is located."

"This is not limited merely to employees who are engaged in actual physical work on the product itself, because by express definition in section 3 (j) an employee is deemed to have been engaged 'in the production of goods, if such employee was employed in *producing, manufacturing, mining, handling, transporting, or in any other manner working on such goods, or in any process or occupation necessary to the production thereof, in any state.*"

Therefore, the benefits of the federal law are extended to such employees as maintenance workers, watchmen, clerks, stenographers, messengers, all of whom must be considered as engaged in processes or occupations "necessary to the production of goods".

Recent higher courts have interpreted the phrase "necessary to the production" to mean that any and all employees are subjects of the law if they occupy positions *necessary or useful* to the operation or maintenance of interstate commerce.

Moreover, those engaged specifically in producing, or handling, or transporting are considered as being within the provisions of the law.

Obviously, the relatively broad scope of this law, which also includes all employees engaged in *any* employment *necessary* to the *production* of goods sold and distributed in interstate commerce results in many employers being required to pay the wages stipulated by this law when, in fact, they honestly do not understand their obligations.

For illustration, in National Labor Relations Board *v.* Jones & Laughlin Corporation, 301 U. S. 1, 57 S. Ct. 615, the Supreme Court of the United States upheld the constitutionality of the National Labor Relations Act, and said:

"Although activities may be intrastate in character when *separately* considered, if they have such a close and substantial relation to interstate commerce that their control is essential or appropriate to protect that commerce from burdens and obstructions, Congress can not be denied the power to exercise that control. . ."

Southern Pacific Company *v.* Industrial Accident Commission, 251 U. S. 259, the Supreme Court of the United States said:

"Generally, when applicability of the Federal Employers' Liability Act is uncertain, the character of the employment, in relation to commerce, may be adequately tested by inquiring whether, at the time of the injury, the employee was engaged in work so closely connected with interstate transportation as practically to be a part of it."

Therefore, in view of these decisions rendered by the higher courts a mining company largely engaged in intrastate-commerce transactions may be legally compelled to pay wages prescribed by the federal law if the work in which an employee is engaged is "necessary" to the conduction of the interstate business, although the work may be intrastate in character.

Percentage of Business.—Another question not, until recently, decided by a higher court is whether an employee who is employed to perform less than 50 per cent. of his duties as an interstate worker is within the control of the act.

It is believed, from an interpretation of the Administrator's explanation, that an employee who only occasionally works on interstate jobs is not actually "an interstate worker". Therefore, the new decision of Hart *v.* Gregory, 10 S. E. (2d) 644, is unusually important.

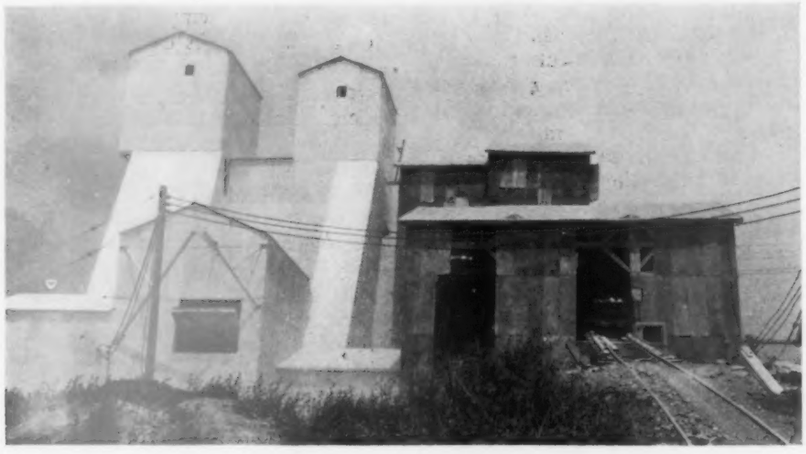
In this case an employee was hired as a night watchman and, also, to keep the boilers filled with water. It is necessary that these boilers be kept full of water during the night, otherwise they would be ruined. The facts that this employee was performing the incidental work on the boilers, and that all the other work which he performed was strictly intrastate resulted in the employer believing that the employee was not within the provisions of the law. Therefore, for several months the employee was paid total wages of only 33 cents per hour. He sued the employer to recover $1,153, the difference between the wages he actually received and the wages he should have received under the act. Although the lower court refused to hold the employer liable, the higher court reversed this verdict and said:

"The argument that the percentages between interstate and intrastate commerce in the distribution of goods is a material consideration is held futile. . . It is plain that the provision can not be applied by a mere reference to percentages and the fact that (the employer's) sales in interstate commerce amounted to only 37 per cent. and not more than 50 per cent. can not be deemed controlling."

In other words, according to this decision, the important consideration, when determining whether an employee comes within the provisions of the law is: Is the work performed by the employee necessary and useful to the conduct of the employer's interstate business? If so, the employee is within the provisions of this law, although he performs a great percentage of his work in intrastate duties.

Another important and late higher-court case on this subject is Fleming *v.* Lowell Company, 30 Fed. Supp. 320. In this case the court held that a company was engaged in "interstate commerce" and subject to the Fair Labor Standards Act even though more than 98 per cent. of its total business was intrastate business.

Indiana Operator Builds New Plant to Supply Growing Demand for Agstone



New plant at left as seen from the edge of the quarry. Portion of old plant at right still houses the primary crusher.

THE growing demand for agricultural limestone was the main reason which last year prompted the Newton County Stone Company to erect a new crushed-stone plant at its quarry three miles east of Kentland, Indiana. The old plant, which had produced millions of tons of stone since it was erected on the site about 30 years ago, had

By HARRY F. UTLEY

also become outmoded in many respects and it was decided, among other changes, to utilize the efficiency of late-model vibrating screens and supplant the revolving units which had been used for so many years.

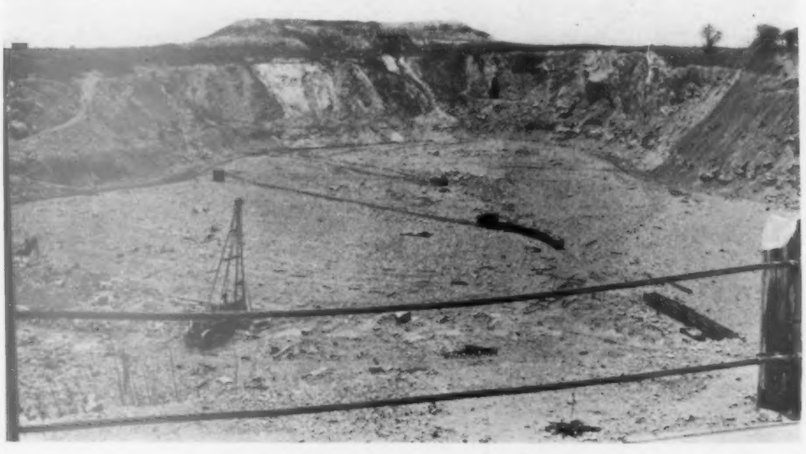
The new plant, erected alongside the site of the old, has a capacity of about 150,000 tons annually, 30 per cent. of the output being finely crushed and pulverized and sold for agricultural purposes. Only that part of the old plant housing the primary crusher and the plant end of the incline from the quarry is still being used. This portion is shortly to be incorporated as a part of the new structure.

The deposit covers a rectangular area of 22 acres and stripping is no longer necessary since the entire tract is being quarried. The floor is about 70 feet below the ground level and the strata of limestone are almost vertical. Good stone will be available for many years as the quarry is further deepened, test drillings reveal.

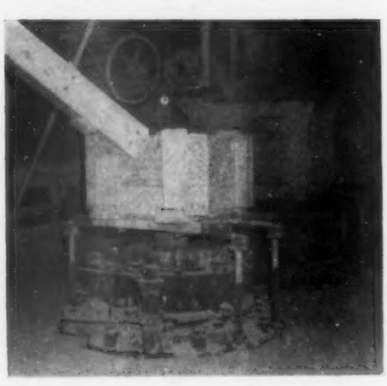
Blasts bringing down 10,000 to 15,000 tons of stone are set off every three or four weeks during the operating season, the drilling equipment consisting of Sanderson-Cyclone and Armstrong well-drills and Ingersoll-Rand Jackhamers. Air is furnished by an Ingersoll-Rand compressor powered by a 65-horsepower

Another view of the new plant.

Feed end of the primary crusher.



A quarry view, showing well-drill, locomotive and cars.



Two of the three cone crushers with make agricultural stone.

Well-arranged loading facilities beneath the storage bins.

General Electric motor. The holes are loaded with du Pont explosives and detonated with Primacord-Bickford fuse. Considerable secondary shooting is usually required.

Stone is loaded by a Marion 1½-cubic yard steam shovel into 18 end-dumping steel cars each of 2-cubic yard capacity. These are drawn over 36-inch-gage track by an 8-ton Plymouth gasoline locomotive to the foot of an incline which extends 350 feet up to the primary crusher, a No. 108 Austin gyratory machine driven by a General Electric 100-horsepower variable-speed motor. The friction hoist which pulls the cars up the incline is driven through a countershaft by the same motor.

Leaving the primary crusher, the material is carried to the new plant over a 30-inch by 48-foot belt-conveyor where it is transferred to a No. 8 Telsmith bucket-elevator and carried upward 70 feet to the first of three Telsmith Pulsator vibrating screens, all equipped with woven-wire cloth.

Two triple-deck sizing screens.

The first screen, a double-deck unit 4 by 12 feet in size, has 2½- and ¾-inch-mesh wire cloth on the upper deck and 1½- and $\frac{3}{16}$-inch-mesh on the bottom. Material over 2½ inches in size is scalped off and chuted to a No. 5 Austin gyratory secondary crusher. The remaining products of this screen may be sent directly to the loading bins, or some of them diverted to a surge bin for additional crushing later on.

The product of the secondary crusher is carried by a 24-inch by 30-foot belt-conveyor to another No.

The double-deck scalper.

8 Telsmith bucket-elevator on 79-foot centers and returned to the top of the plant for sizing. This is accomplished by a pair of 4- by 10-foot Pulsator screens arranged side by side, one having two decks and the other three, the feed from the elevator being through a split chute. The sized material is chuted to the loading bins.

Three Nordberg Symons 3-foot short-head cone crushers are employed for fine reduction, two units being new, the third having been used for a short while in the old plant. The cones are arranged in line on an intermediate floor in the plant, the feed coming (1) from the surge bin previously mentioned, (2) from the top decks of the two 4- by 10-foot sizing screens, or (3) larger stone recovered from one compartment of the loading bins. Thus one, two or all three of the

Discharge end of the primary crusher.

cones may be operated at one time, depending upon the demand for agricultural stone, all the plant output from minus-$\frac{3}{16}$-inch down to dust being marketed as such. The product of the cone crushers is carried up to the two 4- by 10-foot sizing screens along with the output from the secondary crusher *via* the 30-foot conveyor and 79-foot elevator.

The all-steel storage and loading bins are divided into six equal compartments of 108 cubic yards each. They were furnished, along with the chute-type gates and plant-supporting structure, by the Butler Bin Company. The building is inclosed with corrugated-steel sheets protected with aluminum paint applied after their erection.

The stone is exceptionally clean after breaking and requires no washing, being acceptable under the specifications of the Indiana Highway Department. Shipments are made by both railroad and highway, sizes from 2 inches down being stored. The bulk of the output goes into highways, either as new construction or for maintenance, while up to 50,000 tons of agstone is expected to be produced and disposed of annually.

(Continued on page 76)

Cost Records Provide Valuable Guide to This Gravel Company's Operation

PLANT DAILY PRODUCTION

Date 6/23/42 — Weather Rain — Hours Run 8 — Foreman Wright

EQUIPMENT LABOR & MATERIALS	STRIPPING	PLANT OPERATION	Repairs	Hrs.	Rate	Total Cost
Cost of Gravel Used @ 5¢ per yd						28.15
Cost of Power @ $10 per day						10.00
Shovel #2 (inc oper)		8		8	6.00	48.00
Truck #4 (inc driver)		8		8	2.00	16.00
" #3 " "		8		8	2.00	16.00
Superintendent		8		8	Salary	7.50
Bracer		8		8	.55	4.40
Mechanic		8	V	8	.60	4.80
Laborer	2 cutting brush	4	4	8	.55	4.40
						$139.25

MATERIALS PRODUCED	TONS PRODUCED	SALES COST (Chg. Sales Dept.)	INCOME
CONCRETE SAND	500	.10	50.00
MORTAR SAND	—	.25	
4" STONE	60	.50	30.00
2" STONE	60	.50	30.00
1" STONE	65	.50	32.50
½" STONE	75	.50	37.50
Income from Production			$180.00
Other Revenues (Loading 20 4 yd trucks run @ 15¢)			3.00
Total Income			183.00
Cost of Production			139.25
Profit or Loss		Profit	$43.75

This is the plant Daily Production sheet. Rental cost of the plant is deducted from the profit shown at the bottom of sheet.

PLANT SALES RECORD DATE 6/23/42

ITEMS ON SALES COST — TOTAL

Shovel loading from stockpile - if needed (at flat rate per hour, including operator's wage)

Weigh-master — @ salary — 4.00

TRUCK	SOLD TO	TRUCK RATE	SAND	STONE	
Knapp	Tuttle - Peterboro	.65	—	12520	
	" "	.65	—	12080	
	Glenroy - Scott	.25	—	12380	
	" "	.25	12460	—	
	Leonard - Swanzey				4 cu yd fill
Sanders	Peterson - Keene	.25	4770	—	
	Kinsel - W Keene	.25	4590	—	
	Frank - Keene	.25	—	13130	
	" "	.25	—	4730	
	Tuttle - Peterboro	.65	—	14330	
Jones	Breen - Scott	.25	—	14430	
	" "	.25	14730	—	
	Silsby - Keene	.25	13770	—	
	Humphrey - "	.30	—	—	2½ cu yd fill
Customers own truck	City of Keene	—	4420		
	" "	—	8920		
	Neukert	—	8480		
#4	Humphrey - Keene	.30	—	—	Haydfield
	Franks - "	.25	9240	—	
	Glenroy - Scott	.25	5960	—	
	" "	.25	—	9160	

This is the plant Sales Record. A new form, on which the various sizes of stone (and possibly of sand) will be entered, is planned.

IN Swanzey, New Hampshire, about three miles south of Keene, Arthur Whitcomb operates a gravel pit, the operating costs of which are kept in such a manner as to provide a simple means of determining daily production profit or loss. Whitcomb's cost keeping also enables him to keep track of the earning power of each piece of equipment; tells him when to dispose of equipment; and what to look for or avoid in buying new equipment.

Arthur Whitcomb is the owner of what is probably the largest fleet of power shovels in New Hampshire. His Swanzey gravel pit is only one of his numerous enterprises. But, like all his enterprises, it is based on the policy of profiting from a flat hourly rate for the use of equipment, rather than as the result of performing a certain amount of work. He rents power shovels to others at a flat hourly rate which includes operators' wages and all other expenses . . . and he takes his own medicine by renting the same equipment to himself under exactly the same conditions.

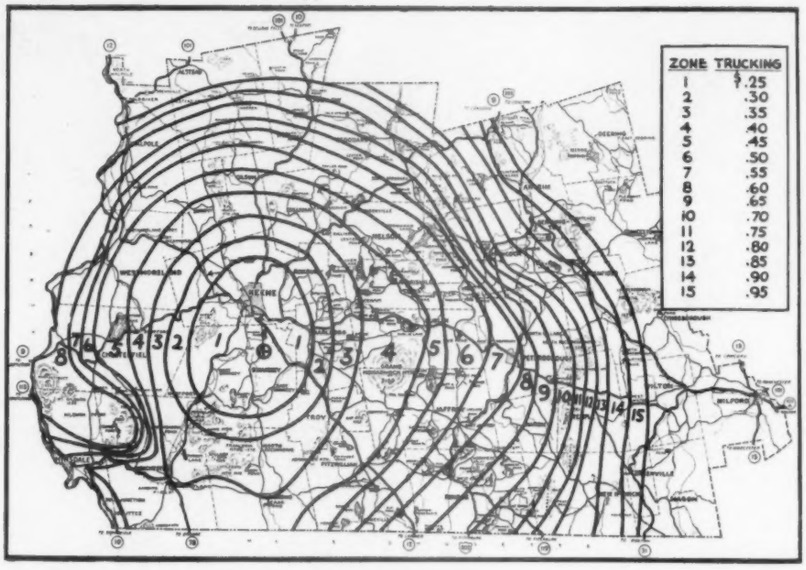
His Swanzey gravel pit, therefore, is expected to make a profit out of preparing stone, gravel and sand with rented equipment and plant, the rent of which includes the cost of power and labor. Raw material is charged against the operation at a fixed rate per cubic yard, and the prices at which the finished products must be supplied to the selling organization for re-sale to consumers are also fixed.

Starting business with one shovel, of which he was the operator, Arthur Whitcomb, at first, kept no consistent record of costs. He hoped he was making money, but repairs and replacements were often unexpectedly large and he came to the conclusion that he should keep track of what he was paying out and for what, so as to learn if he was really making a profit or merely making a living at shovel operator's wages.

By SPENCER JONES

One of his most frequent and costly replacement items was wire rope, for his shovel had small sheaves and reverse bends that quickly ruined the cable. He started his records by keeping track of the cost per working hour of different makes and types of wire rope. To his surprise he found that preformed rope invariably proved cheaper in the long run, although its purchase price was slightly higher.

"One of the first results of my early cost keeping," says Whitcomb, "was my discovery that it would pay me to use preformed wire rope exclusively. Generally I use it with a wire-rope center except where it runs over sheaves of very small diameter, in which cases I go to the hemp center. In all cases, however, I now use the preformed type as it more than makes up for the added price I have to pay for it. It has a considerably longer life, changing cables takes less time, it is more flex-



This is one of Whitcomb's zone delivery maps with trucking charges listed on it. The cross in the circle marks the location of the Swanzey pit.

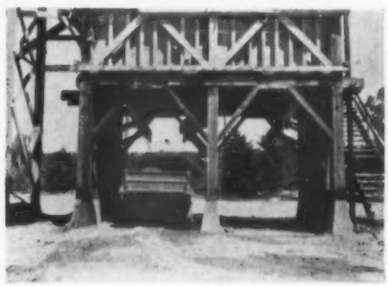
ible, which is probably the reason for its longer life, it is easier to handle and much less likely to kink when being installed. When preformed finally does start to wear out, no broken outer wires stick up to cause trouble like non-preformed, and with preformed I can use a wire-rope center and still have a rope that is flexible enough for almost every purpose, so I seldom have to use a weaker hemp-center cable."

In his Swanzey gravel pit Whitcomb uses an old ¾-cubic yard shovel, rigged with preformed wire rope, of course, and for this, as for all his shovels, he keeps a set of daily records. The shovel is rented to the pit operation at $6.00 per hour for digging out raw material to be prepared in the plant. Another shovel, a ½-cubic yard truck-mounted P&H, is rented to the selling organization at $4.50 per hour for loading out prepared stone, gravel and sand from the stock-piles.

Each day's shovel-cost record shows when, where, for whom and how long each shovel worked; the operator's name, working hours and wages; the costs, quantities and kinds of gasoline, oil, grease and repair and replacement parts; who did the repairing and replacing; how long it took him and what the *pro rata* labor cost was; from whom repair and replacement parts were purchased; the time-cost of special service to the shovel; how much rent was paid for the use of the shovel, etc. Each month the total rental received for the use of each shovel is compared with the monthly costs, including *pro rata* overhead, insurance charges and pick-up truck charges. The difference is the profit or loss for the month's operation of the shovel as a unit of equipment.

Exactly the same principle is applied to cost records and profit or loss calculations in connection with the trucks, tractors, gravel-preparation plant and other Whitcomb physical equipment. Such accounting fetishes as depreciation reserves, amortization, outgoing and incoming interest, burden, etc., have no official standing in Whitcomb's cost records. For bank and credit statements he is always willing to estimate the probable value of equipment at quick sale, but this has nothing to do with his cost records. He sets up no amortization funds, believing that if a piece of equipment isn't paying for itself as quickly as it should, he'd rather amortize it all at once . . . by getting rid of it!

In the case of each shovel Whitcomb expects each to earn a minimum net of 20 per cent. of its purchase price the first year, 17½ per cent. the second year, 15 per cent.



Loading a truck with stone under the bins.

the third year, 12½ per cent. the fourth year, 10 per cent. the fifth year, 7½ per cent. the sixth year, and 5 per cent. each year thereafter. Other equipment is expected to earn different percentages of the purchase price over different lengths of time. And any piece of equipment that barely earns the yearly percentage it is expected to make is likely to be "amortized" any time.

Hourly rental rates are established by dividing the probable costs (based on prior records for similar equipment, or on carefully-figured estimates) plus expected profits (based on the purchase price of the equip-

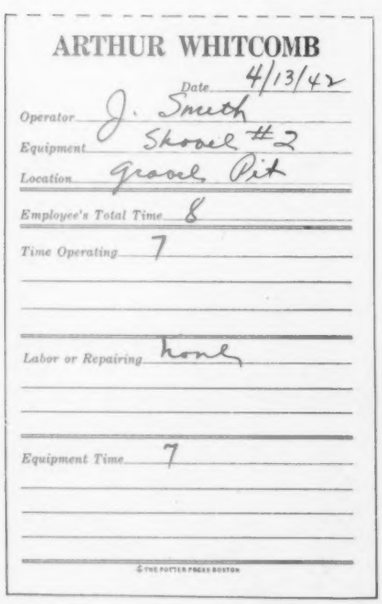
Panorama of the pit and plant.

ment) by the expected number of working hours (based on estimates of the probable future work available).

Extreme simplification is the basis of Whitcomb's cost records. For instance, overhead, as he defines it, is a variable consisting of non-production expenses actually incurred, such as office and supervisory salaries, rent, taxes of all kinds and interest on money borrowed to operate the business. But interest paid on money borrowed for the purchase of equipment is considered capital investment on which the equipment must pay a profit.

The old ¾-cubic yard shovel that is rented to the gravel pit loads raw material into two International rear-dump trucks, a 3-cubic yard DS-30 and a 3-cubic yard KS-5. There is about 12 inches of overburden, which is first removed with a La Plant-Choate bulldozer and a D-4 Caterpillar tractor, aided occasionally by the shovel and truck. The top 6 inches of the overburden is sold for second-grade loam and the bottom 6 inches for fill.

The loaded trucks back down a ramp and dump through a stationary grizzley into a 35-cubic yard wood hopper which rests on a concrete foundation. Beneath the hopper is a 36-inch Kennedy-Van Saun belt-feeder, driven from the tail assembly of a Boston Woven Hose & Rubber Company 24-inch conveyor belt. The raw gravel goes from the feeder to this belt-conveyor, which is 124 feet long center to center, and up



ARTHUR WHITCOMB

Date 4/13/42
Operator J. Smith
Equipment Shovel #2
Location Gravel Pit
Employee's Total Time 8
Time Operating 7
Labor or Repairing None
Equipment Time 7

Every shovel and truck operator, in fact, every operator of automotive equipment, turns in a report like this every day.

Flume through which used wash water is returned to artificial pond.

an 18-degree slope at a speed of 225 f.p.m. The belt is made of 5-ply, 28-ounce duck, with a ⅛-inch top and a 1/32-inch bottom, and has a tensile strength of 2,000 pounds. It runs on Link-Belt roller-bearing idlers, is supported on an Anderson Engineering Company steel frame, and has Anderson head and tail assemblies with independent motor drive and remote control. The motor is a 10-horsepower, 220-volt, a.-c. machine.

At present this conveyor drops the raw material down a chute into a rotary bull screen 40 inches in diameter and 7 feet long, driven at 11 r.p.m. from the primary-crusher drive. Perforations in the bull screen are ¾- and 1½-inch circular. So long as there is a sale for oversized stone this rotary screen will probably be retained, but sometime in the future Whitcomb plans to substitute a 5- by 10-foot double-deck vibrating screen.

Material scalped off the rotary screen falls into a 9- by 36-inch single-shaft Telsmith primary jaw crusher, which is driven by a 50-horsepower, 220-volt, a.-c. motor. Because of the demand for oversized stone there is no secondary crusher, although one may be installed later, together with an 18-inch rubber belt recirculating conveyor feeding back to the 24-inch belt in a closed circuit.

As now arranged, material from the bull screen, as well as that from the primary crusher, falls on an 18-inch, 5-ply belt-conveyor. This belt, also a Boston Woven Hose & Rubber product, has ⅛-inch top and 1/32-inch bottom layer on 28-ounce duck, and has 2,000 pounds tensile strength. The belt pulleys are 178 feet apart center to center, the belt speed is 300 f.p.m., and the belt's slope is 18 degrees. This conveyor is supported on a wood trestle and runs on shaft- and bushing-bearing idlers of various makes. The drive of the head assembly is by a 15-horsepower motor, remote-controlled. The motor speed of 900 r.p.m. is reduced by a home-assembled device, consisting of a 5-groove V-belt pulley on the motor shaft with the five V-belts driving a flat pulley, on the opposite end of whose shaft is a pinion gear meshed into a large gear on the shaft of the head pulley. Although a little out of the ordinary, the arrangement works perfectly. The tail assembly is one manufactured by the New England Road Machinery Company.

The 18-inch belt-conveyor discharges into a "wet" chute, down which a stream of water flows with the material on a 3- by 8-foot double-deck Telsmith pulsating screen. Sprays from lengthwise perforations in two pieces of 1¼-inch pipe are used to wash off material at the lower end of the 2-inch mesh upper deck. The lower deck is 1-inch mesh. A 5-horsepower motor drives the screen.

Material scalped off the upper deck goes to a 4-inch stone-storage bin; that rejected by the lower deck goes to the 2-inch stone bin; while that passing through the lower deck falls into a hopper and thence on a 4- by 10-foot double-deck Telsmith

pulsating screen driven by a 7½-horsepower motor.

Material from the upper deck of this screen goes to the 1-inch stone bin. The upper-deck screen is ½-inch wire mesh when making concrete sand and 5/16-inch wire mesh when making mortar sand.

Material rejected by the lower deck goes to the ½-inch stone bin. The lower-deck screen is 3/16-inch wire mesh when making concrete sand and ⅛-inch when making mortar sand.

Material passing through the lower screen falls into still another hopper, from which it is chuted to a sand tank for sale as either concrete sand or mortar sand.

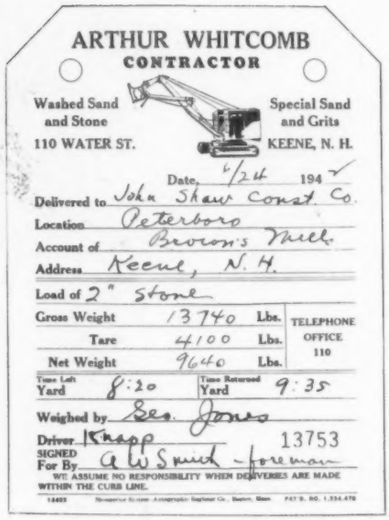
There are six stone and sand storage bins, each with a capacity of 35 tons, used for supplying trucks, but this is not sufficient total storage capacity, so stone and sand are also kept in stock-piles. Dump trucks haul the stone from the bins and dump it on the stock-piles over the edge of a previously-excavated portion of the pit.

Sand was originally discharged from the sand tank down a flushed chute to a sand stock-pile in the previously-excavated pit below. This arrangement had to be discarded because the pile of sand that was flumed out into the old pit got so large that it was no longer practicable to stock-pile sand exclusively by the flume method. It was necessary to extend the stock-pile of sand beyond the practical distance limits of fluming. To accomplish this Whitcomb installed a ½-cubic yard Sauerman drag scraper and a Mundy hoist, a combination which works successfully. In selecting the cable for this drag-scraper apparatus, flexibility and resistance to sand-abrasion were important considerations. For both the drag cable and the tail rope Whitcomb chose 6 by 19 preformed wire rope, regular lay, plow steel, hemp center, and of Seale construction because the outer wires are larger to resist the wearing action of the sand through which the cables are dragged part of the time.

Recently a bin was built under the sand tank so that sand could be discharged from the tank directly into the new bin, as well as flumed out to the storage pile in the old part of the pit. The reason for this was that by changing screens on the 4- by 10-foot double-deck vibrating screen special sands can be produced, collected in the bin, and then trucked away to a separate stock pile.

Another recent change in the layout is the installation of a trip on the 18-inch conveyor from the crusher to the wet chute, which allows taking the crusher-run gravel from the belt. This crushed gravel, containing many pieces of broken stone, has no large, smooth stones to be thrown out. The broken stones help bind the material together so that it packs well and it is in good demand for driveways and other purposes where only a few inches of thickness is used.

Depending on the demand, the storage bins are used for the various sizes and types of stone and sand, for sized stone exclusively, or for various mixtures of different sizes of stone. In addition, it is planned to install a converging set of wet chutes beneath the bins to allow mixing the different sizes of stored materials as they are loaded into delivery trucks. A preliminary change in this direction is the recent installation of a rinsing chute beneath each bin so that small particles of chipped stone (broken off by the long drop into the bins) would be washed off the larger sizes of stone. This also makes it possible to deliver clean washed stone even though one of the screens should have become broken and allowed some fines to get into the stone.


ARTHUR WHITCOMB
CONTRACTOR
Washed Sand and Stone
Special Sand and Grits
110 WATER ST.
KEENE, N. H.
Date, 4/24 194
Delivered to John Shaw Const Co.
Location Peterboro
Account of Brown's Mill
Address Keene, N. H.
Load of 2" Stone
Gross Weight 13740 Lbs.
Tare 4100 Lbs.
Net Weight 9640 Lbs.
TELEPHONE OFFICE 110
Time Left Yard 8:20
Time Returned Yard 9:35
Weighed by Geo. Jones
Driver Knapp
13753
SIGNED For By A W Smith - foreman
WE ASSUME NO RESPONSIBILITY WHEN DELIVERIES ARE MADE WITHIN THE CURB LINE.

Delivery slips include a record of the round-trip time consumed in making each delivery. One double slip stays in the machine; one goes to the customer; and one (signed by the customer to acknowledge receipt of stone or sand) is returned by truck driver to the weighmaster.

Still another contemplated improvement is the construction of a movable chute under the lower deck of the 4- by 10-foot Telsmith pulsating screen; the use of two sizes of mesh in the screen, ⅛- and $\frac{3}{16}$-inch; and the use of the movable chute to select varying proportions of fine and coarse sand falling through the mesh openings. A sand screw is planned to convey the sand mixture to the desired storage bins.

From 8 to 12 men, including the superintendent, operate the production part of the sand-and-gravel plant, which has a capacity of 100 tons per hour. The Plant Daily Production sheet shows how their services are recorded on an hourly basis, as well as how the costs of raw gravel and power used are figured. The plant-rental cost is an office deduction from the profit of each day's operation. On this Plant Daily Production sheet the tonnage of material produced is recorded, together with the prices the sales department is charged for them.

A daily Plant Sales Record keeps track of sales and deliveries. The ½-cubic-yard truck-mounted P&H shovel at the gravel pit is used for loading out sand and stone from the stock-piles when necessary, and is rented (together with the services of an operator) to the sales department at a flat $4.50 hourly rate for the purpose. The only other

(Continued on page 76)

Rotary bull screen and primary crusher.

General view of the Rosoff plant with loading bins in foreground.

"Downhill" Plant Producing 250 Tons Hourly for 14-Mile Aqueduct Section

By HARRY BUCKENHEU

District Manager, Smith Engineering Works

NEW YORK STATE is recognized as one of the most beautiful states in the Union. In addition to its natural beauty it also boasts of some of the greatest engineering accomplishments the world has yet known.

The endless chain of subways and elevated systems in New York City, the many tunnels and miles of elevated highways and beautifully landscaped parkways, had to be provided to accommodate the ever-increasing population.

A much more important problem, however, was the New York City water-supply system and after years of planning the Delaware Aqueduct finally became a reality and was started in 1937. From its terminus at the northern outskirts of New York City it extends for a distance of 85 miles in a northwesterly direction under beautiful countryside and the Hudson River to Rondout Reservoir. It is expected to be completed in 1945 and will then be the longest continuous water tunnel in the world and will have cost about $300,000,000. It is planned to extend the tunnel another 35 miles farther west to East Delaware Reservoir at some future date. An article setting forth details of this tunnel was published in the December 1941 issue of PIT AND QUARRY.

The New York Board of Water Supply, which is in charge of this work, let ten separate contracts to individual contractors. The longest section, known as contract 313 was awarded to Samuel R. Rosoff, Ltd., and covers a length of 75,100 feet of 13½-foot tunnel. This section is located near Kerhonkson, in Ulster County, just off route 209 and includes numbers 2, 2A and 3 shafts.

Samuel R. Rosoff, Ltd., of which Samuel R. Rosoff is president, is well qualified to handle a gigantic job of this kind. Other members of the Rosoff organization are A. H. Diamant, vice-president, Fred W. Stiefel, manager and chief engineer, and J. W. Holden, manager of the Rosoff Sand & Gravel Corporation. All these men have had years of experience in this kind of work, having built much of New York City's subway system.

The 2½-cubic yard shovel loading one of the 8-cubic yard end-dump trucks.

The problem of providing aggregate for a job of this size was no little one and after a very careful search a large deposit of sand and gravel was found near the job. The next problem was that of securing an efficient sand-and-gravel plant to produce an absolutely clean and perfectly graded material as the specifications are very rigid. Two grades of gravel and one grade of sand are being used as follows:

Minus-1½-inch plus-¾-inch gravel
Minus-¾-inch plus-¼-inch gravel
Minus-¼-inch sand (natural)

The plant was designed and erected by Telsmith engineers in collaboration with the Rosoff officials.

The following equipment is included in the plant: Two 36-inch by 6-foot plate feeders, one No. 540 rotary grizzly, one No. 16-B primary crusher, 7 Pulsator vibrating screens, two 36-inch Gyrasphere crushers, two 72-inch by 10½-foot Super-Scrubbers, 8 Barber-Greene conveyors equipped with Hamilton belting, one 24-foot Dorr hydro-separator, all operated by individual G. E.

motors. There is one 1,500-cubic yard 3-compartment Blaw-Knox bin.

Because the deposit is on the top of a hill, the plant was built on the slope and the material moves downhill practically all the way to the bins. The height from the road level to the floor of the pit is about 125 feet. The face of the pit is about 20 feet high and over 1,000 feet long. There is only about 3 feet of over burden. The stripping is being done with a Caterpillar-drawn Le Tourneau 16-cubic yard scraper. There are very few large bowlders in this deposit and it averages about 50 per cent. sand and 50 per cent. gravel.

A 54B Bucyrus Erie 2½-cubic yard shovel is used in the pit to load three 8-cubic yard end-dump trucks. These trucks carry the material to the feed hopper at the plant, a distance of about one-quarter mile.

The trucks dump into a 40-cubic yard surge bin on the top of which are grizzly bars spaced about 15 inches between centers. A 36-inch by 6-foot Telsmith plate feeder operated with a 5-horsepower motor removes the material from this bin and delivers it to a No. 540 Telsmith rotary grizzly which insures a uniform feed throughout the plant. This grizzly, which is 54 inches in diameter, has 10 rings made up of 2½-inch bars with 3-inch openings between the rings. It is operated by a 10-horsepower motor at a speed of 12 r.p.m. The plus-3-inch material is discharged to the 16B Telsmith primary crusher, which is operated by a 60-horsepower motor.

Discharge end of one of the large scrubbers.

The discharge opening is normally set at about 2½ inches.

The material going through the 3-inch-spaced grizzly bars, as well as the crusher discharge, is collected in a hopper and then passes to another 36-inch by 6-foot Telsmith plate feeder operated by a 5-horsepower motor. This feeder delivers the material to the main belt-conveyor, which is 36 inches wide and 114 feet long and is operated by a 25-horsepower motor.

The main conveyor delivers all the material to a 5- by 12-foot Telsmith double-deck scalping screen driven by a 10-horsepower motor. The openings on the top deck are 1¾ inches and on the lower deck ¾ inch. Everything beyond this scalping screen is a dual operation.

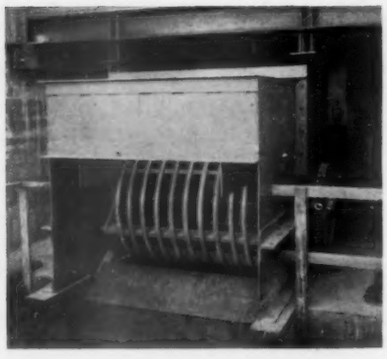
The plus-1¾-inch material from the top deck of this scalper is split and always goes to two 36-inch Telsmith Gyrasphere crushers, each being driven by a 60-horsepower motor and normally set to a ¾-inch discharge opening. In order to secure the right proportion of 1½-inch and ¾-inch gravel in the finished product, the material from the lower deck of this scalper, which is minus-1¾-inch plus-¾-inch, is controlled by a flap gate which allows a certain amount to go to these two crushers while the remainder is taken with the minus-¾-inch material, which includes the sand, directly to the two washing screens.

The material from the two crushers is taken back on an 18-inch-wide by 84-foot-long conveyor under each crusher and delivered to two 3- by 10-foot double-deck Pulsator screens equipped with sprays and each driven by a 5-horsepower motor. Each conveyor is driven by a 7½-horsepower motor. These screens act as secondary scalpers and remove the minus-¼-inch crusher grits, which are not permitted in the specifications. The openings on the top deck of these screens are 1-inch and on the lower deck ¼-inch. The plus-1-inch material goes to the main conveyor and back over the 5- by 12-foot scalping screen, thus forming a closed circuit around the crusher. The minus-1-inch and plus-¼-inch material is delivered to a conveyor under each screen. These conveyors are 18 inches wide and 75 feet long and each is operated by a 7½-horsepower motor. These conveyors deliver the material to the

Two scrubbers discharging to two double-deck sizing screens.

The 24-foot hydroseparator and heavy-duty classifier.

View from the primary-crushing platform showing arrangement of conveyors.



The rotary grizzly.

same flume which receives the minus material from the 5- by 12-foot scalping screen and all of which goes to the two 5- by 12-foot washing screens.

The minus material from the 5- by 12-foot scalper, together with the material from the two 3- by 8-foot scalpers, is collected in a hopper where water is added. Then it is delivered by split chute to two 5- by 12-foot triple-deck Pulsators equipped with heavy sprays and operated with 15-horsepower motors. The openings on the top deck are ¾-inch and on the middle deck ¼-inch. At times a 6-mesh cloth is used on the lower deck, but more often no cloth is used on this deck.

View showing conveyors to bins, hydroseparator and, at lower left, pipe carrying water and crusher grits to separate screening plant.

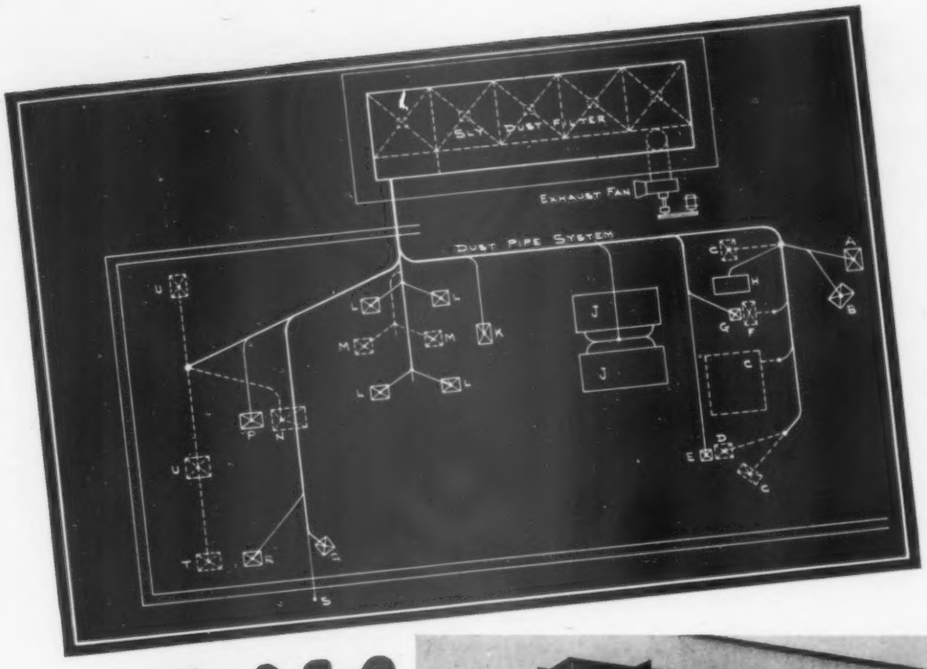
One of the 36-inch crushers.

These screens remove the sand which is flumed direct to the Dorr hydroseparator.

The gravel from both decks of these two screens is then delivered to two 72-inch by 10½-foot Super-Scrubbers, each driven by a 75-horsepower motor. Clean water is injected into these scrubbers along with the material and a still larger volume of water enters the scrubbers at the discharge end. All the water, together with the silt, mud and clay, and the small amount of remaining sand, are ejected through the perforated plate at the receiving end to the waste flume. As the gravel travels through the scrubber it is constantly brought into contact with cleaner water so that by the time it is discharged it is absolutely clean. The rotating action of these scrubbers keeps the material gyrating and quickly disintegrates all the clay and soft stone.

Each of these scrubbers discharges to a 3- by 8-foot Telsmith double-deck sizing screen, equipped with sharp sprays which rinse the material. These screens are operated by 5-horsepower motors. The openings on the top deck are ¾-inch and on the lower deck ¼-inch. Material from the top deck, which is 1½-inch gravel, as well as the material from the lower deck, which is ¾-inch gravel, is delivered to two 24-inch-wide parallel conveyors, operated by 10-horsepower motors, which discharge the material to the storage bins. The lower ¼-inch deck dewaters the gravel.

The crusher grits, which are removed through the two 3- by 8-foot Telsmith secondary scalping screens, are flumed to another 3- by 8-foot Telsmith vibrating screen where the grits are dewatered and discharged to a 50-cubic yard Blaw-Knox steel bin. These grits are a waste product.

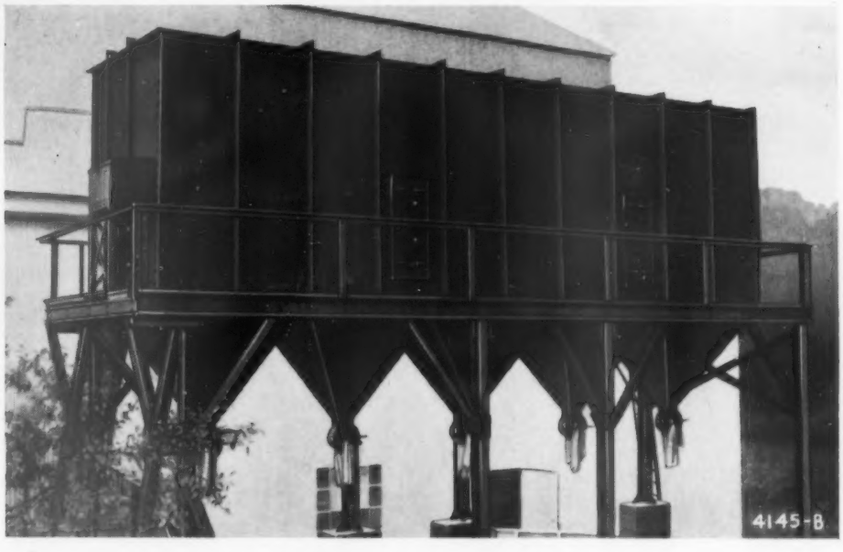


LEGEND

- A Discharge belt conveyor to scalping screen
- B Discharge belt conveyor to storage bin
- C Discharge of roll crushers
- D Boot of bucket elevator
- E Head of bucket elevator
- F Boot of bucket elevator
- G Head of bucket elevator
- H Vibrating screen
- J Two double vibrating screens
- K Head of bucket elevator
- L Magnetic separators
- M Discharge magnetic separators to belt conveyor
- N Discharge belt conveyor to bucket elevator
- P Head of bucket elevator
- Q Discharge bucket elevator to belt conveyor
- R Head of bucket elevator
- S Bulk carloading
- T Discharge belt conveyor to bucket elevator
- U Discharge of "feeders" to belt conveyors

SLY DUST CONTROL

IMPROVES WORKING CONDITIONS— UPS PRODUCTION



★ This Sly Dust Control System, for a large feldspar producer, collects dust caused by handling feldspar, particularly in its crushing, screening, conveying, storage and loading as indicated by the accompanying sketch.

Prior to the Sly installation, the dust presented a serious problem. The company consulted us. Definite air volumes were determined and the system installed accordingly—resulting in improved working conditions and increased production.

Sly Dust Filters offer certain exclusive advantages which help enormously in efficient operation:

1. Greater filtering capacity because of more filtering cloth
2. Taut bags (patented) save power and improve dust removal
3. Bags more easily replaced
4. Automatic control (any degree) minimizes or entirely removes the human factor
5. Simpler shaker mechanism results in savings in maintenance and operation

Write us fully. We shall analyze your problems and tell you exactly what can be accomplished. Sly Dust Control pays for itself.

THE W. W. SLY MANUFACTURING CO.

4745 TRAIN AVENUE **CLEVELAND, OHIO**

★ ★

Flexible hoses which supply water to sprays on de-sanding screens.

All the minus-¼-inch sand is flumed to a 24-foot diameter Dorr hydroseparator. The sand from this machine is discharged on a 30-inch-wide belt-conveyor, operated by a 20-horsepower motor which delivers it to the storage bins. The underflow from the hydroseparator is discharged to a Dorr heavy-duty AX classifier 9 feet wide and 27 feet long, where it is classified and dewatered.

The 1,500-cubic yard, 3-compartment Blaw-Knox bin is equipped with six 18- by 18-inch Telsmith bin gates in each compartment, or a total of 18 gates.

As stated, each unit in the plant is driven by an independent motor and drive. Fully-inclosed fan-cooled motors are used in the dusty places, splash-proof or fully-inclosed fan-cooled motors in the wet locations, and standard open-type motors in the more normal or favorable locations. Automatic starters and push-button controls are used throughout. All the motors are controlled from a central station.

The conveyor frame, idlers and drives were built by Barber-Greene and ball-bearing idlers are used exclusively.

Two thousand five hundred gallons of water per minute is used throughout the plant and is supplied by a 3,000-gallon pump, operated by a 250-horsepower motor. A duplicate emergency pumping unit is installed. The water is pumped from Vernoog Creek and it was necessary to build a dam to insure a sufficient supply. The waste water from the entire plant is piped to 5 huge settling basins, which cover 12 acres and drain from one to another until all the silt and fine sand have settled. A state law requires that the water must be perfectly clear before being discharged back into the creek.

It is estimated that about 350,000 to 400,000 cubic yards of gravel and about 200,000 cubic yards of sand will be needed for the entire contract. This plant has a capacity of 300 tons per hour and thus far an average hourly production of 250 tons has been maintained. In order to meet the concreting schedule on the tunnel, it has been necessary to operate the plant two 8-hour shifts per day. A total of 16 men, including three truck drivers and a "shovel-upper," are employed per shift. The same men also take care of the plant maintenance and have kept the equipment in excellent operating condition. Mr. Holden, manager of this plant, has maintained adequate stock-piles at each shaft and has thus kept well ahead of the concreting requirements.

The trucking of the finished material from the bins to the shafts was sub-let to an outside trucking contractor, but placed under the direct supervision of Mr. Holden. All the trucks are weighed accurately and daily records are kept of all the shipments. Thirty trucks are used to haul to the three shafts. The distance from the bins to No. 2 shaft is about 1 mile, to No. 2 shaft 8 miles, and to No. 3 shaft 20 miles.

Newton *(from page 67)*

All the plant equipment is driven by individual Ross electric motors. Power is purchased from the Northern Indiana Public Service Company at 13,000 volts and stepped down to 220 volts at a plant transformer station. The ratings of the 12 motors total 510 horsepower, 8 being General Electric and 4 Fairbanks-Morse units. Motors on the three screens are 10 horsepower each, each of the two elevators is driven by a 40-horsepower variable-speed unit, one conveyor motor is 15, the other 10 horsepower. Each of the three cone crushers is powered by a 75-horsepower motor and the primary and secondary gyratories by 100- and 50-horsepower units, respectively. Power is transmitted in every instance, save on the primary crusher, through multiple-strand Texrope V-belts.

The plant is located along the concrete pavement of U. S. Highway 24, making it convenient for trucks to reach the plant in all weather. Its railway facilities are provided by the Effner Division of the Pennsylvania Railroad. Two Marion ¾-cubic yard gasoline-powered excavators—one a shovel, the other a clam-shell crane—are used about the plant to build stock-piles, rehandle materials, and load cars.

The company is owned solely by the estate of the late George H. Hart, of which F. U. Sherman is trustee. C. O. Riggs has been superintendent for the last 22 years. L. K. Staton is sales manager.

Whitcomb *(from page 71)*

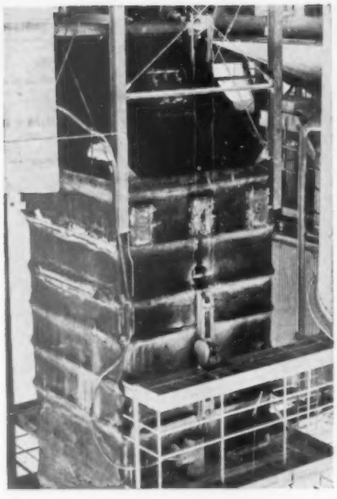
sales-department employees at the pit are the weighmaster and the various drivers of the delivery trucks.

These trucks are rented by Whitcomb to his sales department on a flat hourly basis, including the services of their drivers. But delivery charges to the customers are based on ton-hours. Swanzey is in a wide valley, surrounded by numerous hills and mountains of the Monadnock range. Deliveries are made within a 27-mile radius, and delivery charges were at first made on a flat ton-mile basis. It was quickly found that deliveries to destinations in the mountains were costing more than the customers were paying, but to raise the ton-mile rates uniformly would be asking the level-haul customers to pay delivery charges that would tend to drive their business away to competitors.

G. Allen Mott, Whitcomb's associate in the business, investigated the problem and came to the conclusion that the time factor was the biggest single point of difference between the costs of level and hilly hauls. He then recorded the round-trip time to all delivery points, the tonnages hauled, and the fuel, oil, mechanical costs and other expenses involved, finally getting ton-hour operating costs. Taking a map of the Monadnock Region, Mott then plotted the round-trip time to the various delivery points in his delivery area and interpolated a series of equal round-trip delivery-time lines. In effect this gave him a sort of contour map of his delivery area which made allowance for level, uphill and downhill hauls, various road surfaces, curves and mileage.

The round-trip delivery-time "contours" were used to obtain a series of zones, or contours, which represented differences of 5 cents per ton in delivery charges to customers. One of these nickel-a-ton "contour" maps is reproduced herewith. This nickel-a-ton zone system has produced no protests from customers and is also used for establishing the rates at which outside trucks are paid for making deliveries when Whitcomb's trucks are busy.

For *Positive* collection of gas-borne critical materials —specify COTTRELL . . .



• For more than 35 years Cottrell Electrical Precipitators have been cleaning air and commercial gases, recovering values and eliminating the nuisance of gas-borne dust. In metallurgical plants, cement plants, gas plants, paper mills, power plants, oil refineries and acid plants, Cottrell Precipitators are self-liquidating investments free from recurring maintenance charges and obsolescence reserve. Many Cottrells more than 30 years old are still in operation with efficiencies approaching 100%.

• Now more than ever before, selection of the correct collection equipment is of paramount importance in plant construction and enlargement. Critical material shortages make it imperative to specify the method which will, over a period of time, maintain the highest efficiency at lowest power, operating and maintenance costs.

• The collection problems faced by Industry today—whether simple purification, collection of values, nuisance abatement or combinations of all—can be solved quickly and efficiently by Cottrell Electrical Precipitators. Send for descriptive Bulletins.

The VERSATILITY OF COTTRELLS

is shown from the following valuable materials collected in a single day's operation.

1. *6 tons of soda salts at a paper mill.*
2. *55 tons of smelter dust containing 20 per cent copper.*
3. *13 tons of sodium sulphate.*
4. *3 tons of antimony dust from a silver refinery.*
5. *208 tons of 12 per cent copper dust.*
6. *1100 pounds of dust ahead of mercury condensers.*
7. *10 tons of arsenic.*
8. *3 tons of wet tar.*
9. *800 pounds of dry tar.*
10. *4½ tons of alumina.*
11. *5500 pounds of concentrated sulphuric acid.*
12. *220 tons of cement dust.*
13. *120 tons of fly ash.*
14. *6 tons of blast furnace dust.*

WESTERN PRECIPITATION CORPORATION

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Production of Barite Nearly Reached Half-Million Tons in 1941

New all-time peaks characterized many phases of the domestic barite industry in 1941. An all-time high was reached in the mined production of crude barite (483,391 short tons), an increase of 24 per cent. over 1940, according to reports from producers to the Bureau of Mines. New peaks were also recorded in the domestic crude barite sold or used by producers (503,156 tons), an increase of 23 per cent. over 1940, and in the reported consumption of domestic and imported crude barite (490,833 tons). A new record was also set for the total value of domestic crude barite sold or used by producers in 1941 ($3,134,234), of an average value per ton of $6.23, a little less than that in 1940 ($6.34). Increased demands for crude barite came from the ground (and crushed) barite and barium chemical industries.

The quantity of ground (and crushed) barite sold or used by producers in the United States in 1941 was much larger than the previous all-time high of 1940 — 234,877 short tons in 1941 compared with 184,390 tons in 1940, and the total sales value likewise showed a marked increase over 1940, rising to $4,606,832. Price quotations ranged from $25.15 to $27.65 a short ton for 1941 compared with $25.15 for 1940. Well drilling remained by far the dominant use of the ground material.

Sand-and-Gravel Plants Reduce Accident Rates

With a larger enrollment than in any previous year and a larger number of man-hours of work represented, the 13th annual safety competition conducted by the Bureau of Mines, in coöperation with the National Sand & Gravel Association for the promotion of accident prevention at sand and gravel plants, has just been concluded. Companies that participated in the contests of both 1940 and 1941 reduced their accident rates in 1941. However, the enrollment of new companies for the first time in 1941 resulted in higher rates for the entire group of enrolled companies in 1941 than in 1940.

The Bureau of Mines conducts these annual contests to promote safety and to assist in reducing the number of accidents to employees in sand and gravel plants. Enrollment in the contest in 1941 covered 88 plants, and these plants worked 5,321,489 man-hours. Two fatalities and 173 nonfatal injuries occurred during the contest year.

The Chelsea Lake plant, operated by the Missouri Portland Cement Company, won the trophy in the group that worked 100,000 or more man-hours. This plant, located in Memphis, worked 116,726 man-hours in 1941 without a disabling injury.

The No. 2A wet-pit plant, operated by the American Aggregates Corporation, won the trophy in the group working less than 100,000 man-hours. This plant, located in Columbus, Ohio, worked 73,320 man-hours in 1941 without a disabling injury.

Thirty-eight plants (including the 2 trophy winners) of the 88 enrolled in the contest were operated without a disabling injury. Certificates of merit were awarded to the other 36 plants, all in the "less than 100,000 man-hours" group, for having a perfect safety record in 1941.

Mineral-Processing Plant Opens Dry Department

The Black Hills-Keystone Corporation, which was formed in 1930, in June, 1942 put in operation near Keystone, South Dakota, the dry department of a new mill for the processing of various nonmetallic minerals. The wet department of the plant went into operation early in July. The new plant has a capacity of 100 tons in 24 hours and is a combination of dry screening, flotation and agglomerate tabling. It combines facilities for the treatment of low-grade lepidolite and amblygonite and will also recover cassiterite (tin ore) and tantalite. Micas can also be processed by flotation and agglomerate tabling as well as by dry screening.

The raw materials are obtained from two dikes, one containing mainly lepidolite and the other most of the other ores mentioned. Other deposits are also to be opened. The considerable quantities of feldspar mined are not processed in this plant but are shipped to another plant in the vicinity.

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BRUTE LUNGS, BUT NO BACK-TALK...

Look into the vitals of this Worthington Blue Brute Compressor and get a new angle on lung-power! All muscle, you'll say, and plenty of it. Then start it up and listen to the way it breathes!

You'll find that this Brute's smooth delivery through Worthington Feather* Valves will get your next job done more quickly, more safely, more economically—without the air-gulping "back-talk" and whining of lesser breeds.

All Worthington Blue Brutes *save air*. Blue Brute Compressors . . . portable and semi-portable, gasoline-driven, diesel or electric . . . *deliver more air* for every power-dollar you spend. And Blue Brute Air Tools *use less air* for every compression-dollar invested.

Now's the time to investigate those Blue Brute features that give you *extra* lung-power, *extra* stamina — over and above the rock-bottom fact of Blue Brutes' tip-top quality.

FREE EQUIPMENT-SAVER SPEEDS VICTORY

Save tools, time and money, by getting Worthington's new EQUIPMENT-SAVER, *complete instructions* for all tool operators. Your nearest Worthington distributor, listed on page 78, will supply you. If there is none near you, write for it direct to Holyoke.

* Reg. U. S. Pat. Off.

On the Job with

BLUE BRUTES

A western construction man writes: "Have sent in order for some spare parts but I think that I won't have to use them. All three BLUE BRUTE compressors that I have do not give one minute's trouble and operate as perfectly as they did when they first came on this job."

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Compressors from 60 to 500 cu. ft. capacity in mountings to suit all jobs. Rock Drills and Air Tools that have always set the pace for easy operation — available in a wide range of weights and sizes.

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Four flat bearing surfaces give the Laughlin Safety Clip a four-square *Fist-Grip* on wire rope. No finger-pinching U-Bolt to bite and bend the strands, weakening them under high tension and whipping.

95% of Rope Strength delivered with the Fist-Grip Safety Clip is proved by competitive tests, three Safety Clips holding when the rope snaps under four U-Bolt Clips. Fewer clips mean savings in time and money. And inexperienced help can't put them on backwards — the saddles are identical.

25% STEEL SAVED FOR WAR NEEDS—

For an assembly of equal strength, Safety Clips use 25% less steel than a U-Bolt assembly. You are saving precious steel available for ships, tanks and guns when you use Safety Clips. Remember — they don't crimp and crush wire rope — no expensive waste from cut-off rope ends.

These Safety Savings Can Be Yours

No rope crimping — rope saved
Can't go on backward — accidents saved
Bolts on opposite sides — tightening time saved
No battered, bent threads — clips saved
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Fewer clips needed — clips saved
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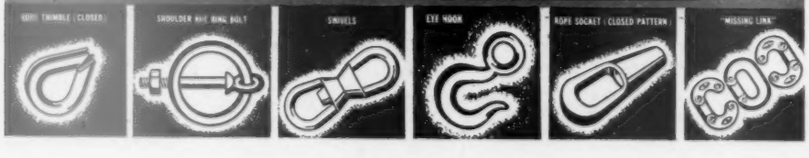


PERSONAL MENTION

ERIK THUNE has been elected president of the National Portland Cement Company, succeeding the late William M. Richardson. Mr. Thune was formerly vice-president. The company's plant is located at Broadhead, Pennsylvania, with general offices in Philadelphia. FRANK A. SWEENEY, formerly vice-president in charge of sales for the Edison Portland Cement Company, is now general sales manager.

MONT T. SHARP has been elected vice-president and general manager of the United States Mineral Wool Company, Chicago, replacing W. F. CUSICK. ROBERT E. OUTMAN has been made a vice-president and will continue to serve also as secretary of the concern.

FRED CLINE, manager of a Neosho, Missouri foundry for many years, has been made superintendent of the Neosho plant of the Southwest Lime Company.

JUD GUSTIN has left the staff of the Coplay Cement Manufacturing Company, Coplay, Pennsylvania, where he served as research chemist, to become research engineer for the Atlas Lumnite Cement Company at Buffington, Indiana.

MRS. GLADYS WELLS and C. K. KOCH, under the firm name of Rare Minerals and in coöperation with the United States Mica Manufacturing Company of Forest Park, Illinois, are operating a sheet-mica punching and plate plant at Custer, South Dakota. The mica is being obtained from the old Westinghouse properties.

WILLIAM J. LYNCH, prominent Chicago contractor and a former director of the Consumers Company, was elected president of Dolese & Shepard Company, Chicago crushed-stone producer at its recent annual meeting.

BEN SCHRADER, a machinist at the Marquette Cement Company plant at Cape Girardeau, Missouri, for 15 years, has resigned that position and gone to work for an ordnance plant in St. Louis.

S. Taylor Dowell, who has been professor of speech in the high school at Chillicothe, Mo., has been appointed by the Missouri State Highway Department as an inspector of gravel. He will be stationed at the Cooley Gravel Company, near Chillicothe, checking material designed for state use.

T. J. Smull, until recently business manager of Ohio Northern University, has been appointed materials engineer for the Ohio State Highway Department.

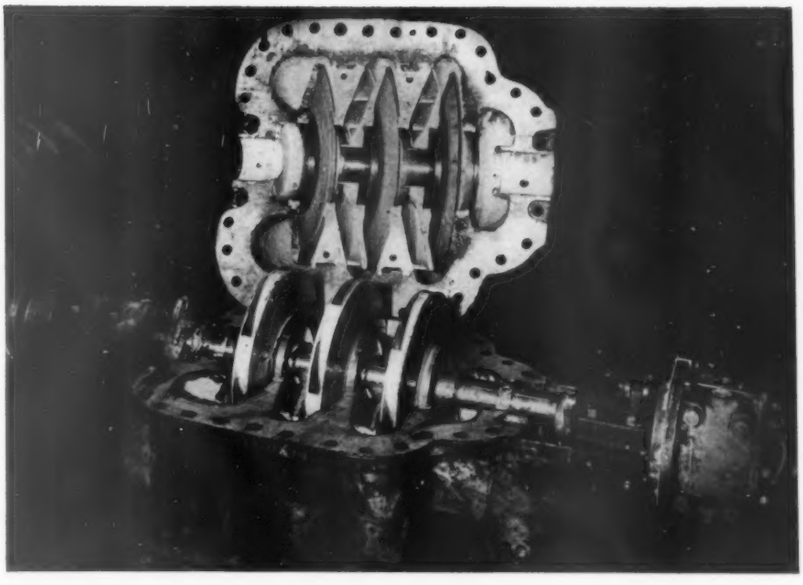
Fred J. Kuehne, one of the owners of the Kansas Sand Company of Topeka, was named president of Co-operative International at the group's annual convention held recently in Chicago. The organization is composed of 90 local "co-ops" with a total membership of 10,000 in the United States and Canada.

S. H. Mortensen, engineer-in-charge of design for ten years, has been appointed chief electrical engineer of the Allis-Chalmers Manufacturing Company plants at West Allis, Cincinnati, Boston and Pittsburgh.

Frank M. Boylan has just joined the Buda Company, Harvey, Illinois, as a field representative in the Industrial Division.

Anthony Anable, a member of the Dorr Company's staff since 1923, and advertising and publicity manager since 1932, has been commissioned a line officer in the U. S. Naval Reserve, rank Lieutenant-Commander, and left August 14 for active duty in an administrative capacity at the U.S.N.R. Midshipmen's School (Officers' Training School) in New York. Commander Anable served as an ensign in the Naval Reserve from 1917-1919 aboard one of the naval transports that carried our first A.E.F. to France. For the present it is planned to have his duties as advertising manager carried on by his assistant, Albert Morris, who has been a member of the department for five years.

John J. Hurley, 53, died of a heart attack at his home in Somerville, Massachusetts, on June 25. He was well known to many lime producers particularly throughout the East because of his long association with the Rockland-Rockport Lime Company.

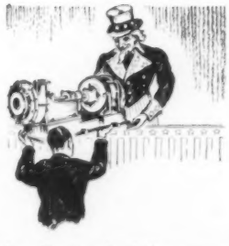


"Devil's" Water they called it, but it didn't harm this MORRIS Pump

See any wear on the impeller or casing of this MORRIS Pump? The photograph was made on opening the pump after 19 years of handling a corrosive and erosive mixture. No repairs or replacements were needed anywhere on the pump.

This is the kind of performance that MORRIS Pump users are accustomed to, even in difficult operating conditions, for MORRIS Pump construction, like MORRIS Pump design, is based on 78 years of experience in building for the "hard-to-handle" services.

WE HAVE ENLISTED



"FOR THE DURATION"

We have placed at the disposal of the government all our facilities that might be of use in the national war effort. But our remaining facilities are at your service, and also the advice of our engineers to help you secure best results from your present equipment and to plan for your future needs.

MORRIS MACHINE WORKS — MORRIS ESTABLISHED 1864 — BALDWINSVILLE NEW YORK

CENTRIFUGAL PUMPS

The Renewable Lip of This Dipper *Saves for Quarries and Pits . . . and Uncle Sam*

Next to the teeth, the lip of a dipper gets the most wear in digging and loading material. In loading shot rock, the lip receives impact shocks and abrasive wear. And in pit work, it must combat the extreme abrasion from the scouring of the sand and gravel or clay as it passes over the lip.

Amsco engineers, cognizant of this abusive service, developed the Amsco Renewable Lip Dipper in 1930. This made it unnecessary to scrap an entire dipper front when a lip had become worn. Although occasionally dippers had been made with renewable lips, they all were of the riveted type. The Amsco renewable lip, being fastened to the dipper back by internal U-bolts and to the lower (renewable) front by interlocking joints and pins, is removed and replaced quickly and easily. To replace a riveted lip wastes hours of labor and shovel operating time, while replacing an Amsco lip is a matter of minutes.

The long-proved durability of shock and abrasion resistant 13% manganese steel, of which these dippers are made, plus the ability to renew those parts which received the brunt of the wear, gave operators, for the first time, a dipper that increased shovel hours and lowered maintenance costs.

The economy of the Amsco Renewable Lip Dipper (Patent No. 1,945,064) is attested to by the fact that over 3,500 have been purchased. The more continuous operation they allow through ready replacement of worn lips or other parts, is more important now than ever.

Amsco Renewable Lip Dippers, as well as Amsco Missabe Dippers and Amsco one-piece small capacity dippers, and dipper parts, are illustrated in Bulletin 641-D which we will send on request.

Replaceable teeth, replaceable lip and replaceable front casting help three ways to keep this dipper off the scrap heap.

Amsco

AMERICAN MANGANESE STEEL DIVISION
OF THE AMERICAN BRAKE SHOE & FOUNDRY CO.
Chicago Heights, Illinois

Manganese Steel Castings for shocks and abrasion.
Chromium-Nickel Alloy Castings for heat and corrosion resistance.
Power Shovel Dippers. Dredge and Industrial Pumps.
Welding Materials for reclamation and hard-surfacing.

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO. OFFICES IN PRINCIPAL CITIES

CHARLES DOWELL, 23, an employee of the Batesville White Lime Company of Batesville, Arkansas, was killed July 22 when three cars on a railroad siding ran over him as he was at work.

HARRY J. LESCHEN, president, A. Leschen & Sons Rope Company, St. Louis, died August 2.

WILLIS H. TOWNE, western division manager of the Gifford-Wood Company, passed away on July 26.

JOHN WERNER, 50, for more than fifteen years a member of the firm of the Yourtree-Roberts Sand Company, died at his home in Mount Vernon, Illinois recently.

TRAFFIC News Digest

I.C.C. Reports

Limestone. — Fourth - section application No. 19550. Limestone from Buffalo - Pittsburgh territory. By division 2. Authority granted by F. S O. 14695, on conditions, to establish and maintain rates on limestone, ground or pulverized, in carloads, from Buffalo, New York, and Shaw Junction, Pennsylvania, and other producing points in the Buffalo-Pittsburgh territory to points in Maryland, western New York, western Pennsylvania, and West Virginia, without observing the long-and-short-haul part of the fourth section. Temporary relief was given by F. S. O. 14556.

Lime. — Fourth - section application No. 19359. Lime from Speeds, Indiana, to the South. By division 2. Authority granted by F. S. O. 14720, on conditions, to establish and maintain rates on lime, in carloads, from Speeds, Indiana, to destinations in Kentucky, Mississippi and Tennessee, without observing the long-and-short-haul part of the fourth section. Temporary relief was given by F. S. O. 14451.

Motor Reports

Patterson, N. Y.—MC 103404. Willard L. Brown.—Denial of certificate proposed. Limestone products and limestone from Patterson to points in Connecticut and New York over irregular routes.

Watseka, Ill.—MC 28089, Sub. 1. John E. Wood, common carrier. Certificate proposed. Crushed stone,

sand, gravel, limestone, and road rock from points in Newton county, Indiana to points in Iroquois County, Illinois.

Central Freight Association

Docket 71283. — (Carrier's proposal). Crushed stone, in bulk, in open-top cars, carload. Establish a rate of 77 cents per net ton from Blocher, Indiana to Seymour, Indiana, also a rate of $1.27 per net ton from Blocher to Vincennes, Indiana. These rates subject to Ex Parte 148 increase.

Docket 71285. — (Shipper's proposal). Stone, crushed, in bulk in open-top cars, and stone screenings, in bulk in open-top cars, carload. Establish a rate of $1.29 per net ton from Bloomville, O., to Cement City, Michigan. *Via* P. R. R. Toledo, N. Y. C. (W) and *via* P. R. R., Van Wert, N. Y. C. (C).

Docket 71294. — (Carrier's proposal). Lime, common, hydrated, quick or slaked. Cancel motor-truck competitive rate of $1.45 per net ton, minimum weight 50,000 pounds, from Milltown, Indiana, to Louisville, Kentucky. A rate of $1.76 per net ton minimum weight 30,000 pounds, to apply in place thereof. (Cancels W D A 71019).

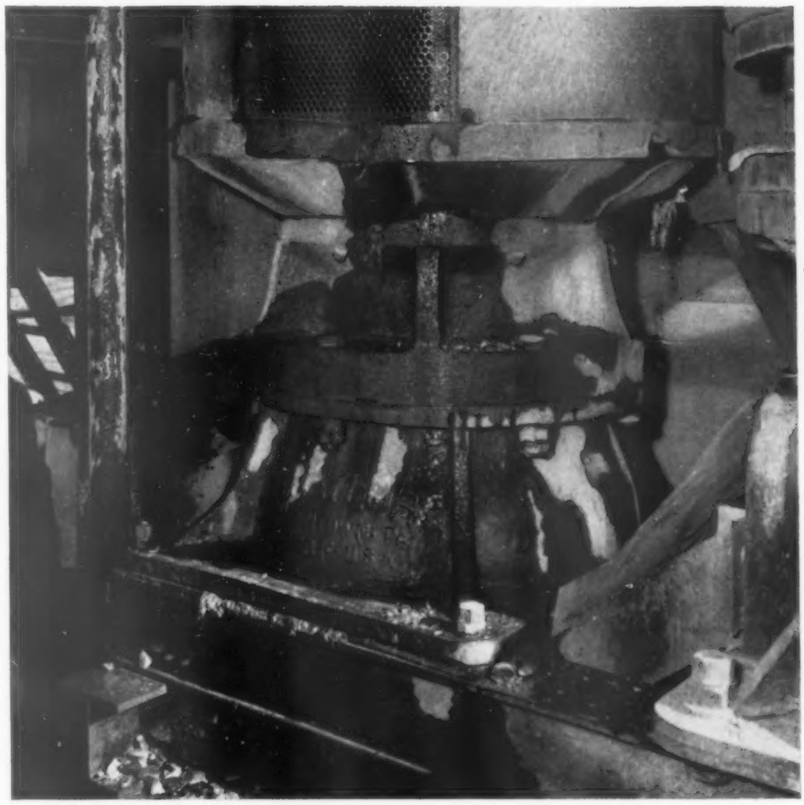
Docket 71299. — (Shipper's proposal). Sand, all kinds, and gravel, in open-top cars, only, carload. Establish a rate of $1.16 per net ton from Havens, Ohio to Sidney, Ohio. Ohio Docket 10400 scale for open-top cars, 15 per cent. to be added in the event closed equipment is used.

Docket 71316. — (Shipper's proposal). Dolomite stone, raw or crude, only having value for chemical purposes, carload. Establish a rate of $1.64 per gross ton from Bettsville, Bloomville, Gibsonburg, Maple Grove, and Woodville, Ohio, to Ludington, Michigan. This rate subject to Ex Parte 148 increase.

Docket 71317. — (Shipper's proposal). Establish on stone, crushed, in bulk in open-top cars, carload, from Marble Cliff, Ohio: to Ravenswood, West Virginia $1.87, to Parkersburg $1.65, to Spencer $2.09, to Millwood $1.76, to Ripley $1.98, to Pennsboro and Cairo $1.76, to West Hamlin $1.76, to Elk $1.60, to Ceredo and Kenova $1.65, and to Wayne $1.76 per net ton.

Docket 71322. — (Shipper's proposal). Establish on lime, common, hydrated, fluxing, quick, slaked or fibered, carload, from Northwestern Ohio Group 1 origins to Berkey, Ohio, a rate of 12 cents per hundredweight, minimum weight 30,000

TRAYLOR



TYPE TY
REDUCTION CRUSHER

This is one of four hundred and some Traylor Type TY Reduction Crushers that have been making records, during about seven years, for (1) large production to uniform size, with little wastage; (2) remarkably low unit cost for power; (3) gratifyingly low expense of maintenance; (4) trouble-free operation.

Is it to be wondered that the TY is popular on five continents—with stone and gravel producers, cement lime and chemical manufacturers, and mining men? In what other crusher are combined ALL of the characteristics that users demand? 'Nuff sed! Investigate it!

SEE BULLETIN 3112

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pounds, and 10 cents per hundredweight, minimum weight 50,000 pounds. These rates subject to Ex-Parte 148 increase.

Docket 71328. — (Shipper's proposal). Establish on lime, agricultural, carload, minimum weight 30,000 pounds, a rate of 9 cents per hundredweight from Luckey, Ohio, to Berkey, Ohio, *via* N.Y.C. (W), Wauseon, D.T. & I. R.R., Denson, O. & M. R.R. This rate subject to Ex Parte 148 increase.

Docket 71381. — (Shipper's proposal). Establish on sand, all kinds, and gravel, in open-top cars, carload, a rate of 99 cents per net ton from Gravel Pit, Ohio, to Cumberland, Ohio. *Via* P.R.R., Zanesville, B. & O. This rate subject to Ex Parte 148 increase.

Docket 71383. — (Shipper's proposal). Establish on ground or pulverized limestone, unburnt, carload, minimum weight 60,000 pounds, a rate of $2.26 per net ton from Bloomington, Indiana to Peoria, Illinois, and $2.37 per net ton from Bloomington to Sycamore, Illinois.

SETTING
the Pace
Regardless of material or operating conditions, Deister PLAT-O Vibrating Screens will set the pace for your production schedules. They will do your screening job with speed, accuracy, economy and dependability because PLAT-O Screens are the product of specialists . . . men whose every working hour is devoted to building and improving separating and sizing equipment exclusively . . . men who have made an intensive study of the problems you face day after day.
PLAT-O opposed elliptical throw makes use of the entire screen surface . . . assures fast, accurate separation. Powerful, positive high speed prevents deadening of throw, overloading and blinding. Simple design, rugged construction and low power requirements reduce operating and upkeep cost. Fully cushioned vibration prevents damage to supporting structure and allied equipment. These are facts . . . proven on the job. Specify PLAT-O Vibrating Screens for your plant and see for yourself. Deister Machine Company, Fort Wayne, Indiana.
DEISTER MACHINE COMPANY
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LABOR DECISIONS

Overtime Payments

Overnight Motor Transportation Company, Inc., v. Missel, decided by the U. S. Supreme Court, June 8, 1942; reported at 62 S. Ct. 1216.

The employee concerned here was employed at a fixed weekly salary, but worked a varying number of hours. No overtime was paid him, because the maximum work weeks, computed at the statutory minimum rates with time and a half for overtime, were less than the salary actually paid. The Supreme Court, however, concurs in the judgment of some of the lower courts which have had the problem before them, and holds that the Fair Labor Standards Act of 1938 was designed to require payment for overtime at time and a half the regular rate, where that rate is above the minimum, as well as where the regular pay is at the minimum. Where, as here, the weekly rate is fixed and the number of hours varies, it is necessary to determine the regular rate for each week by dividing the weekly pay by the actual number of hours, and overtime at time and a half the regular rate for that week is due for each hour over the statutory maximum.

The contract of employment in this case stated no hourly wage and made no provision for overtime, thereby differing from the contract in *Walling v. A. H. Belo Corporation,* decided the same day.

Guarantee Contract

Walling v. A. H. Belo Corporation, decided by the U. S. Supreme Court, June 8, 1942; reported at 62 S. Ct. 1223.

The employer in this case worked out a plan of adjusting its compensation system to the requirements of the Fair Labor Standards Act of 1938, whereby minimum hourly rates of pay and maximum hours were specified, along with a guarantee that the weekly rate would be a certain amount.

The court concedes that it is no doubt true that the purpose of the employer's arrangement with its employees was to permit as far as possible the payment of the same total weekly wage after the act as before. "But," says the court, "nothing in the act bars an employer from contracting with his employees to pay them the same wages that they re-

ceived previously, so long as the new rate equals or exeeds the minimum required by the act." The arrangement is therefore held to comply with the act.

The guarantee contract, according to the holding of the Court, carries out the intention of Congress, specifying a basic hourly rate of pay and not less than time and a half that rate beyond the maximum hours fixed by the act. It is therefore unlike the *Overnight Motor Transportation Company* case decided the same day, for the contract in that case stated no hourly wage and made no provisions for overtime.

Jurisdiction

National Labor Relations Board v. Eclipse Moulded Products Company, decided by the U. S. Circuit Court of Appeals, Seventh Circuit, February 20, 1942; reported at 126 Fed. (2d) 576.

The employer involved in this case challenged the jurisdiction of the National Labor Relations Board because eleven days before its proceedings were started the employer had brought a proceeding before the Wisconsin Employment Relations Board charging that a strike by the employee members of a union was in violation of the statutes of Wisconsin in that the strike was called without a secret ballot. The court holds, however, that there is not necessarily a conflict, since the two boards "operate in the same territory but in different spheres," and that the filing and pendency of proceedings in the Wisconsin Board do not stay the proceedings in the National Labor Relations Board.

An order of the national board against interference, etc., and requiring the company to withdraw support from and discontinue recognition of a company union, and to restore the status and pay of certain employees, is affirmed.

Seamen's Strike

Southern Steamship Company v. National Labor Relations Board, decided by the U. S. Supreme Court, April 6, 1942; reported at 62 S. Ct. 886.

The situation involved in this case is summarized as "one in which an employer indulges in an unfair labor practice, a strike results, and several men are discharged for participating in the strike. If there were no more to the case, and the Board found that it would serve to effectuate the policies of the (National Labor Relations) Act to reinstate the

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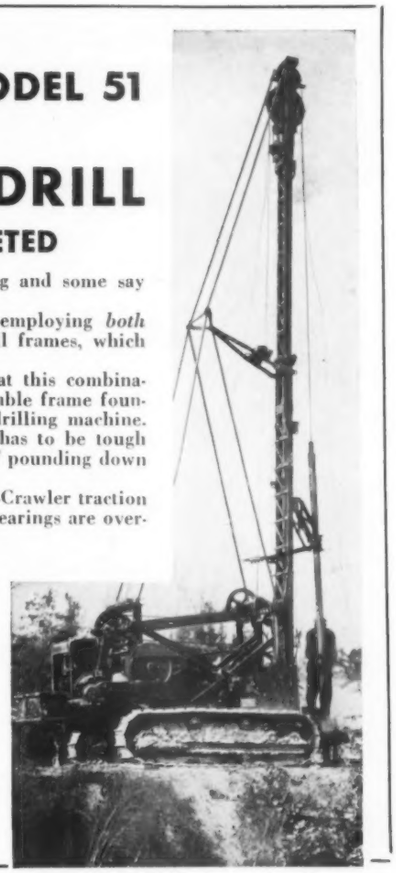

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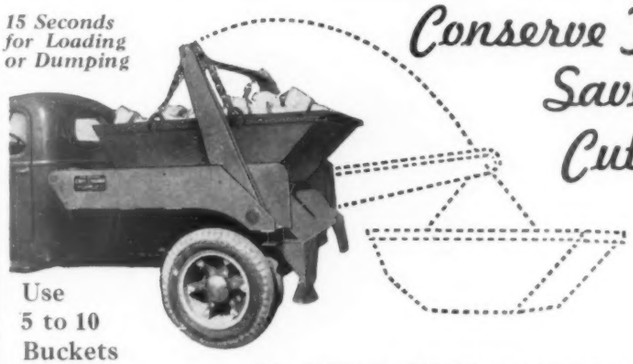

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A man operating under the name A. Yerden has been passing as a *bona fide* subscription salesman and has accepted, without any authorization whatever from us, orders, money and checks for subscriptions to *The Concrete Manufacturer*. When last heard of he was working in the Pennsylvania-West Virginia area.

One of his victims describes him as about 5 feet 8 inches in height and weighing 140 pounds, with black hair streaked with gray and a sallow complexion. He was wearing a dark suit with a conspicuous white stripe.

He uses a long and narrow receipt form which is printed on blue paper, carries the name of the "Publishers Bonded Agency, 428 Fifth Ave., New York City," and lists 22 business magazines. We have not been able to locate any such agency at that address or anywhere else in New York. Several of the magazines listed on the form have told us that he has no authorization to act for them.

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strikers, an order requiring reinstatement would undoubtedly be enforceable. But there is more to this case. The strike was conducted by seamen on board a vessel and away from home port. The question is whether this circumstance renders it an abuse of discretion for the board to order the reinstatement of the strikers."

The court holds that the strike amounted to a violation of the statutes against mutiny, and the case is remanded with instructions that the reinstatement order be eliminated. The contrary decision of the Circuit Court of Appeals, Third Circuit, 120 Fed. (2d) 505 is revised.

Building Employees

Kirschbaum v. Walling and *Arsenal Building Corporation et al. v. Walling*, decided by the U. S. Supreme Court, June 1, 1942; reported at 62 S. Ct. 1116.

This decision affirms two decisions of circuit courts of appeal, in different circuits, holding that persons employed in the maintenance of a building in which the tenants produce goods for interstate commerce are within the scope of the Fair Labor Standards Act of 1938.

The work of the employees concerned "had such a close and immediate tie with the process of production for commerce, and was therefore so much an essential part of it, that the employees are to be regarded as engaged in an occupation 'necessary to the production of goods for commerce.'" Furthermore, "the suggestion that the act, if applied to these employees, goes beyond the bounds of the commerce power is without merit."

Change of Venue

Booth v. Montgomery Ward & Company, Inc., decided by the U. S. District Court, District of Nebraska, Lincoln Division, April 22, 1942; reported at 44 Fed. (2d) 451.

This case, a suit under the Fair Labor Standards Act of 1938, was filed in the District Court of Lancaster County, Nebraska, but was removed to the Federal District Court upon the defendant's motion. The plaintiff moved to remand the case to the state court; and in this decision that motion is granted. The "equal availability of the state and Federal courts" for suits under the Fair Labor Standards Act was acknowledged.

The "court" is satisfied that the legislative purpose, in harmony with the prompting impulse of the Fair

Labor Standards Act, was to grant a board jurisdiction for the enforcement of the obligations imposed under the act, and specifically to vest the plaintiff employee with the election between the available courts. The reasons for that course are manifest. It was and is obvious that, except in very rare group or class actions, the amount of potential recovery under the act will be so small that the aggrieved employee will be tempted to abandon the vindication of his right unless he may institute his suit and prosecute it to effect in a court of his own choice, within his immediate neighborhood, and without burdensome and disproportionate expense both in money and in time." In providing for suit "in any court of competent jurisdiction," Congress "did not intend to do a vain, or a cruelly deceptive thing."

Release of Claims

Hutchinson v. William C. Barry, Inc., decided by the U. S. District Court, District of Massachusetts, May 1, 1942; reported at 44 Fed. Supp. 829.

It was contended as a defense to an action under the Fair Labor Standards Act that the employee gave the employer a release of "all and any claims now or hereafter pertaining to my employment." The court holds that a release of claims is no defense to an action under this statute. "The act constitutes a declaration of public policy against substandard labor conditions. This policy would be defeated if the validity of contracts such as this were to be upheld. It is obvious that desire to continue in employment on the part of the laborer would make it easy for an employer who wished to ignore the act's provisions to induce him to execute a release of claims under the provisions of the act. Unless such agreements as this be declared void, it would therefore be easy to circumvent the declared purpose of Congress."

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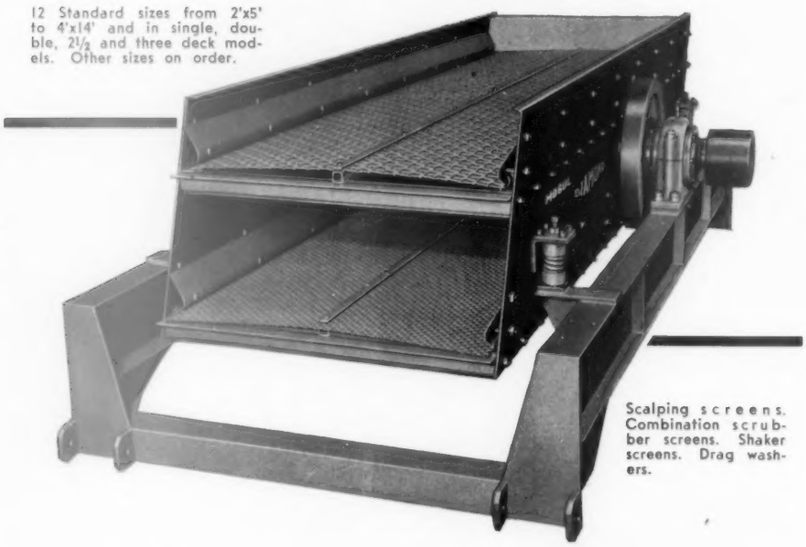

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OCCUPATIONAL DISEASES and the LAW

Right of Action

Mnich v. American Radiator Company decided by the New York Supreme Court, Appellate Division, Fourth Department, March 25, 1942; reported at 263 App. Div. 573.

Silicosis first became compensable in New York on September 1, 1935, by group 28 of subdivision 2 of section 3 of the Workmen's Compensation Law, added by Chapter 254, Laws of 1935.

This suit alleges a cause of action based upon statutory duty; that from 1924 to and including August 31, 1935, the plaintiff was employed by the defendant; that he continued in the defendant's employ until August 23, 1937, and continued to be exposed to the hazards of silicosis until that date, but that no claim for damages is made in this suit by reason of exposure or injuries subsequent to August 31, 1935. The trial court gave summary judgment to the defendant (employer) on the ground that the plaintiff's remedy is under the Workmen's Compensation Law and such remedy is exclusive. That judgment, however, is reversed in this appeal.

Plaintiff's complaint, says the Appellate Division, alleges a good cause of action as of August 31, 1935. "It could not have been the intention of the Legislature that all employees possessing an accrued right of action on August 31, 1935, should be compelled to choose between quitting work on that day and losing such right of action." The court finds nothing in the statute indicating an intention to take away a right of action already vested, or to provide a new form of remedy for such a case.

Compensable Disease

Webster v. St. Joseph Lead Company et al., decided by the New York Supreme Court, Appellate Division, Third Department, May 6, 1942; reported at 34 N. Y. S. (2d) 729.

This case was an appeal from an award for permanent total disability compensation, based upon a finding that the claimant contracted an occupational disease. The claimant

was a miner, assigned to drilling and blasting duties. On December 5, 1937, he became disabled as a result of pulmonary tuberculosis, imposed upon a silicotic condition of the lungs. The court finds that there was competent medical evidence to the effect that the silicotic condition was not disabling, but there was also evidence that the disease of tuberculosis was caused by the claimant's employment, which exposed him to wet and cold conditions, fumes, gases and improper ventilation. The award for an occupational disease is held to be proper under the evidence.

Recurrence of Ailment

Mountford v. Wright Photo Offset Company, Inc., et al., decided by the New York Supreme Court, Appellate Division, Third Department, May 6, 1942; reported at 34 N. Y. S. (2d) 731.

The claimant became disabled by reason of dermatitis, an occupational disease, sustained while in the employ of the appellant employer. He quit work on December 13, 1940, after having received medical treatment for some time. He continued his medical treatment and returned to work on February 4, 1941, for another employer in the same occupation. After working a short time he suffered a recurrence and was compelled to stop work again on February 28, 1941. The principal question was whether the disability results from his return to work on February 4, 1941, or was a recurrence of his previous disablement and the result of his employment prior to December 13, 1940. The court holds that the evidence sustains the finding that the recurrence of the disease and the disability were the result of the first employment. An award of disability benefits made by the State Industrial Board under the Workmen's Compensation Law is accordingly affirmed.

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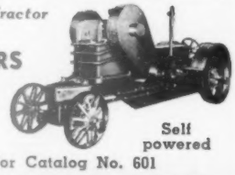

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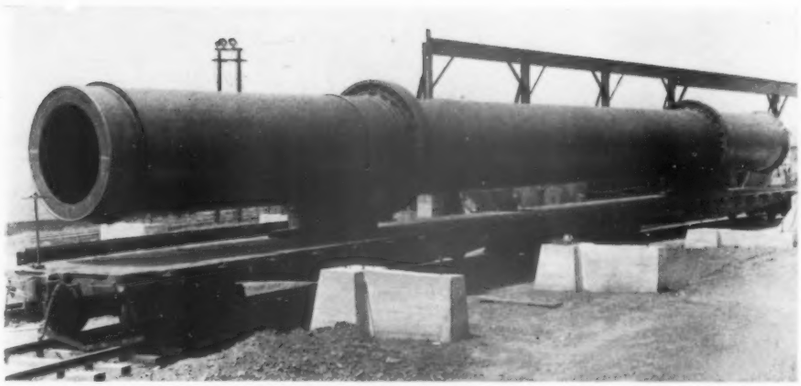

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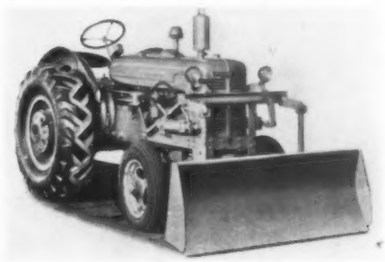

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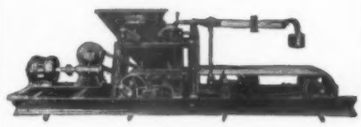

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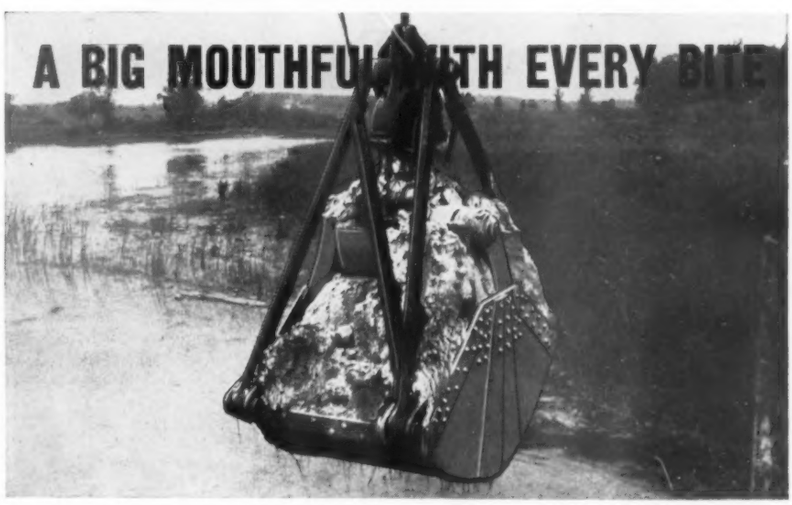

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Trade Literature

Save Rubber—Cuts Costs with "Belt Saver" Tail Pulleys. (Bulletin 3001), 4 pages. Sprout, Waldron & Company, Muncy, Pennsylvania.

Trackson Tractor Equipment for Industry. 8 pages. Trackson Company, Milwaukee.

A Guide to Wartime Care of Electric Motors. 24 pages. Allis-Chalmers Manufacturing Company, Milwaukee.

Portable Electric Belt Vulcanizers. (Bulletin 2158), 4 pages. B. F. Goodrich Company, Akron, Ohio.

Hardinge Conical Mills. (Bulletin 13-D). Hardinge Company, York, Pennsylvania.

American Steel Conveyor Pulleys. (Bulletin CP-42), 4 pages. American Pulley Company, Philadelphia.

Ruggles-Coles Dryers. . . . Kilns . . . Coolers. (Bulletin 16-C), 36 pages. Hardinge Company, York, Pennsylvania.

McNally-Vissac Heat Dryers. (Bulletin 242), 8 pages. McNally Pittsburgh Manufacturing Corporation, Chicago.

Universal Vibrating Screens. (Catalog 107), 32 pages. Universal Vibrating Screen Company, Racine, Wisconsin.

Hi-Discharge Moto Mixers. (Bulletin 405), 24 pages. Chain Belt Company, Milwaukee.

Wheelco Measuring and Control Instruments. (Bulletin Z6000), 16 pages. Wheelco Instruments Company, Chicago.

Amsco Manganese Steel for Crusher, Grinding Mill and Pulverizer Parts. (Bulletin 642-C), 22 pages. American Brake Shoe & Foundry Company, Chicago Heights, Illinois.

Heil Dig-N-Carry Truck-Trailer Scoops. 4 pages. Heil Company, Milwaukee.

Schramm Fordair Compressor. 12 pages. Schramm, Inc., West Chester, Pennsylvania.

Keystone "74" *Cleanout Well Drill.* 6 pages. *Keystone Model* 51 *Blast Hole Drill.* 8 pages. Keystone Driller Company, Beaver Falls, Pennsylvania.

A Handbook of Screen Information. (Catalog C), 116 pages. Newark Wire Cloth Company, Newark, New Jersey.

Goodyear Industrial Rubber Products Conservation. 38 pages. Goodyear Tire & Rubber Company, Akron, Ohio.

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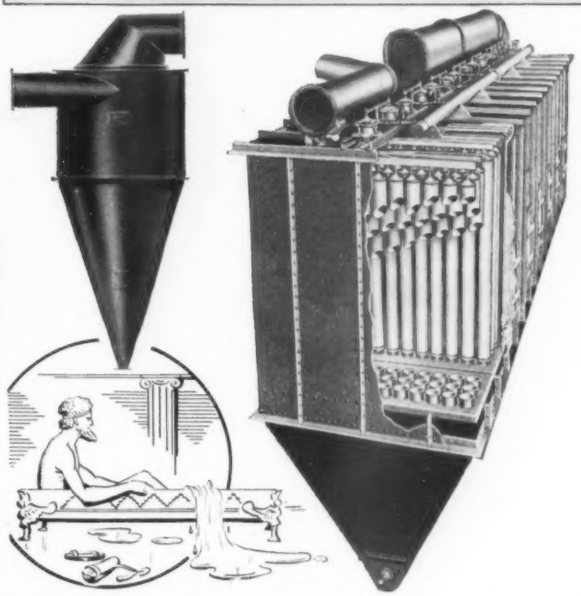

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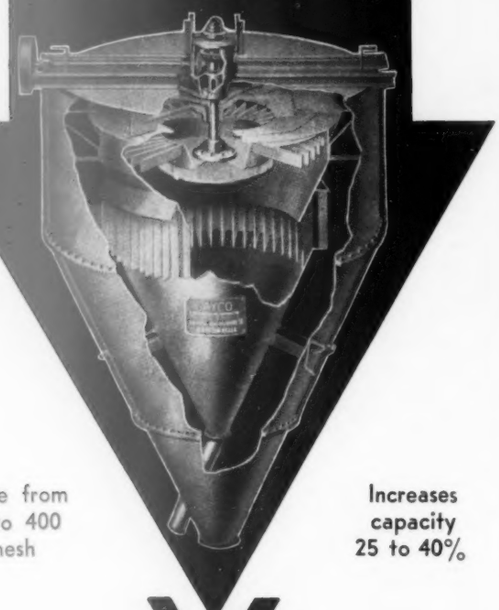

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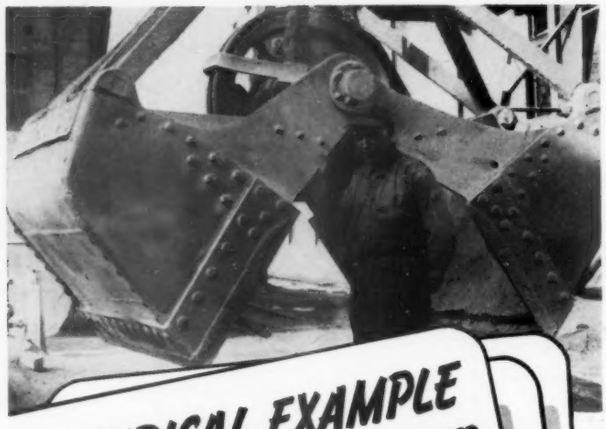

A TYPICAL EXAMPLE
HOW STOODY ALLOYS ARE BEING USED IN THE ROCK PRODUCTS INDUSTRY TO PROLONG THE LIFE OF WEARING PARTS

Lips for this three-yard CLAM SHELL BUCKET cost $300.00 installed. Under ordinary conditions these lips are completely worn out in six months and are fit for nothing but scrap. Four years ago a mid-western Cement Company hard-faced the lips pictured above with Stoodite. Cost of the application, including time and material, was approximately $150.00. Savings at present are estimated at $750.00, but the Stoodite deposit shows very little wear and, according to the Superintendent, the lips will undoubtedly last at least another four years and perhaps longer. When the bucket lips are finally worn out, the savings from this $150.00 application will therefore amount to $1500.00. This savings record is, of course, outstanding, but in many other cases you will also find that you can save considerable money by hard-facing the wearing surfaces of your equipment with Stoody Alloys. If you have a wear problem, your nearest Stoody distributor will welcome the opportunity of serving you.

Ask for a free copy of our new booklet—"Hard-Facing—Industry's Weapon against Wear." Shows how to lengthen life of screens, air rings, drag link chains, latches, keepers, bucket lips, pulverizer hammers, bucket conveyors, dipper and drag line teeth, ring and roll mills, conveyor screws, clam shell bucket lips, etc.

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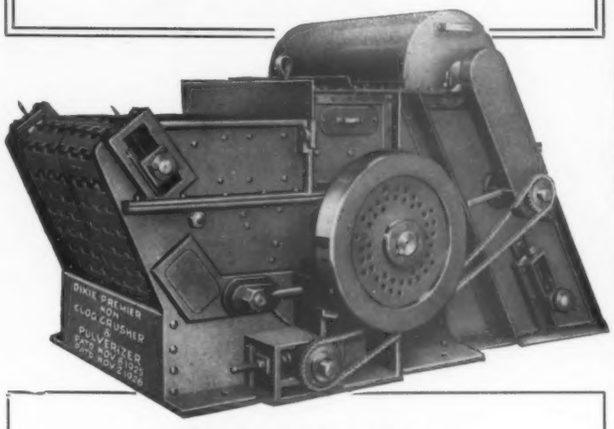

DIXIE
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1. Replaced four crushers for high moisture content bauxite . . . cut power in half . . . reduced drying costs . . . increased production.
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And because the Dixie moving breaker plate can be adjusted forward or backward from the hammer points, quality and size of production can be controlled. This feature also provides additional assurance against clogging.

These are but two of Dixie's outstanding features. Send coupon below for free booklet, "More Efficient Crushing of Raw Materials" which gives complete facts.

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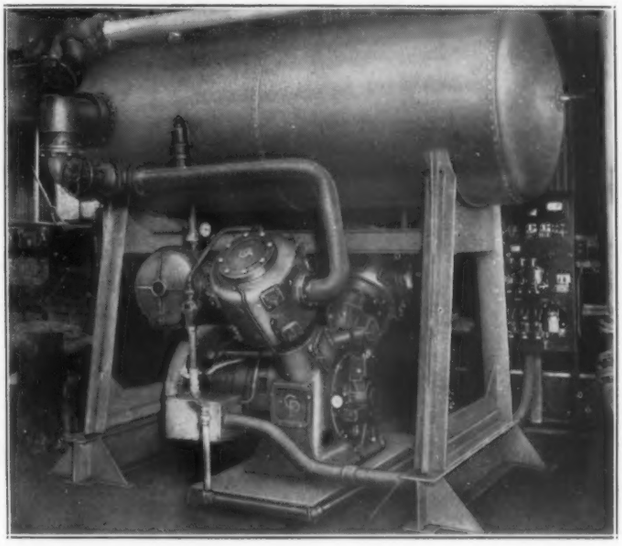
150 H.P. CP AIR COMPRESSOR



With Motor...

Only 7' 8" x 5' 0"
Solves Problem of Limited Space

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CP Type Y Compressors are available in capacities of 501 to 900 cfm for 100-125 lbs. discharge pressure, with built-in electric motor, coupled motor or other prime mover, or belt wheel. Sizes for other pressures also available. Bulletin No. 766 gladly sent on request.

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In Parsons Oval Bag Dust Arrestors you find exclusive engineering features that have earned their stripes on sheer performance and efficiency in every-day use under all kinds of conditions.

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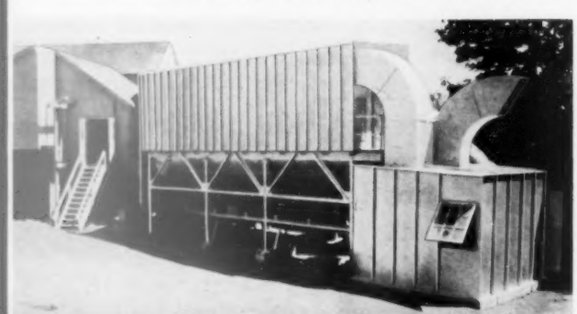
These are just a few of the many exclusive features that go to make Parsons Oval Bag Dust Arrestors the talk of the trade. Send for free booklet on "Mastery Of The Air."



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YOUR Gardner-Denver rock drills are made from scarce materials—alloys of nickel, chrome, molybdenum, vanadium—high strength alloys that make possible the modern high performance of rock drills.

WPB allocates the necessary "scarce material" for the manufacture of these tools, so important to the production of base metals, and to all defense construction involving rock excavation.

But it is the patriotic duty of users of rock drills to get the most work and longest life out of them, and to:

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3. Protect them against the entrance of abrasive cuttings into the working parts.

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In addition to the manufacture of certain war materials requiring precision comparable to rock drills, we are continuing full production of our mining equipment to meet your increased needs. Gardner-Denver Company, Quincy, Illinois.

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Outstanding advantages of the famous Gardner-Denver Continuous Feed Principle include increased drilling efficiency—less vibration—far less wear—unusually low upkeep.

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September 1942

The CONCRETE MANUFACTURER

A Special Section of ... IT DAIRY

Ready-mixed-concrete plant of Arundel-Brooks Concrete Corporation's Woodberry plant at Baltimore, Maryland.

• CONCRETE PRODUCTS • READY-MIXED CONCRETE

The CONCRETE MANUFACTURER

September, 1942

A SPECIAL SECTION OF PIT AND QUARRY DEVOTED TO PRODUCTION MARKETING AND USES OF CONCRETE PRODUCTS AND READY - MIXED CONCRETE

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Vault Makers Complying with WPB Regulations

The War Production Board's limitation order No. L-64, restricts the use of metals in the production of caskets, shipping cases and burial vaults. Since July 1 no metal has been allowed, except that up to 10 pounds of hardware, handles or fastenings of iron and steel may be used per casket, shipping case or vault.

Following the release of L-64, a study was made concerning the load-bearing capacity of burial vaults made in compliance with this order. This study indicated:

That if either the box or cover in the top-seal concrete vault, or the cover and bottom in the air-seal concrete vault can be satisfactorily handled during the manufacturing, curing and transporting operations without cracking, vaults made without reinforcing steel will have an ample factor of safety to carry the superimposed earth load, provided—

1. That the concrete has a compressive strength of not less than 5,000 p. s. i.

2. That the side walls of the vault have a minimum thickness of 1½ inches and the top of the air-seal vault and the bottom of the top-seal vault have a minimum thickness of 2 inches.

3. That the cover of the top-seal vault or the bottom of the air-seal vault has a minimum thickness of 2 inches.

The study also indicated that the allowance of 10 pounds of iron and st el was sufficient adequately to fasten and tie the handling and lowering devices, ordinarily used, securely into the concrete.

The above statements are based on the use of good plant practice in the manufacture of concrete vaults, such as:

1. A plastic workable mix with not over a 6-inch slump.

2. The use of vibration or efficient hand spading during placing.

3. Not less than 24 hours in the mold at a temperature above 70 degrees F.

4. Moist curing for at least 7 days at not less than 70 degrees F.

5. That a minimum of 20 per cent. of pea gravel or well-graded crushed stone passing the ⅜-inch sieve and all retained on a No. 8 sieve be used as part of the aggregate.

Subsequent to this study, a number of burial-vault manufacturers made extensive tests on concrete vaults made in compliance with the order and in accordance with the above recommendations. Reports of these tests were presented at the National Concrete Burial Vault Association convention in June, 1942. The results reported were in complete agreement with the above recommendations.

By following the above recommendations and using concrete with a minimum strength of 5,000 p. s. i., vault manufacturers can produce acceptable vaults, in full compliance with the W.P.B. Order.

Universal Builds New Pipe Plant at Sedalia

Work is under way at Sedalia, Missouri on the construction of a branch plant of the Universal Concrete Pipe Company of Columbus, Ohio. According to J. F. Downs, division freight and passenger agent of the Missouri Pacific Lines, the firm has leased from the railroad 40,000 square feet of ground for new buildings to house machinery valued at $100,000.

Contracts for the building were let to C. G. Schrader and W. C. Cramer of Sedalia.

The company has a contract for $150,000 worth of concrete pipe to be used at the air base south of Knob Noster, Missouri.

Anderson Plant Enjoys Excellent First Year

The Transit Mix Company of Anderson, Indiana has set a high record in its first year of operations. It has mixed and sold over 12,000 cubic yards of concrete in that time. Six truck-mixers are in constant use covering a 25-mile area. The company is just completing a large contract for resurfacing streets where abandoned car lines were torn up to utilize the steel rails for the war effort. Material has also been furnished recently for road widening projects in this vicinity.

Concrete for War Department's Office Building Made by Precision Methods

WITH the speed and efficiency which have marked our war effort since December 7 construction is going rapidly ahead on the new War Department Office Building which, when completed, will be one of the largest buildings ever constructed. This huge building is located in Arlington County, Virginia, near the end of the 14th Street Bridge across the Potomac River from Washington on what was formerly the Hoover Airport. It will house about 40,000 workers who are now crowded into temporary buildings in Washington and is scheduled for completion early in November, at least a month ahead of the original estimate. Two of the five sections of the building were occupied early in May by 6,000 workers, although the first concrete was not poured until October, 1941. Over 13,000 construction workers are employed.

The entire area consists of fill 8 feet deep over swampy land and the buildings are supported on piling up to 45 feet in depth. The main building covers an area of 35 acres and has a 6-acre court. It consists of four stories and a basement but some sections may be increased to six stories in height. Incidental buildings include a boiler-house and a cafeteria capable of seating 5,000 persons, and several smaller restaurants are included in the main building. About 300,000 cubic yards of concrete is required for this building and about 200,000,000 cubic yards for the roads, bridges, parking areas, boiler-house, sewage facilities, etc. By April 10 about 165,000 cubic yards of concrete had been placed. The last monthly pour exceeded 50,000 cubic yards with a "peak" day of 2,776 cubic yards.

A general view of the operations. Stiff-legged derrick and stock-piles at left, concrete plants at right.

All this concrete has been produced from concrete-batching plants using the SC_2 control system of the Scientific Concrete Service Corporation.

The original plant, which is now Plant Number 2 of the present dual batching plant, began producing concrete in October, 1941, from a temporary location. Production from the present location was begun in January, 1942. This plant is owned and operated by the United States Government but its operation is supervised by the Howat Concrete Company, which has the contract for hauling the concrete from the plant to the job and mixing it *en route*. The construction work is being done by the John McShain Company and several sub-contractors. It is significant that the SC_2 system of control was specified in the concrete contract and that SC_2 technicians supervise the plant operations for the concrete company.

Rotary gates and screw-conveyors which feed cement to both plants.

A view showing concrete plants Number 1 (right) and Number 2.

The specifications call for ¾-inch gravel for heavily-reinforced concrete and 1½-inch gravel for mass concrete. The Potomac River sand used has a specific gravity of 2.65 and the gravel of 2.62. About one-third of the gravel is crushed.

The average mix used approximates 1:2:3 ½ and about 41 gallons of water are required for a 7-inch slump. The cement requirement is 5.37 sacks per cubic yard and a water-cement ratio of 0.57 is

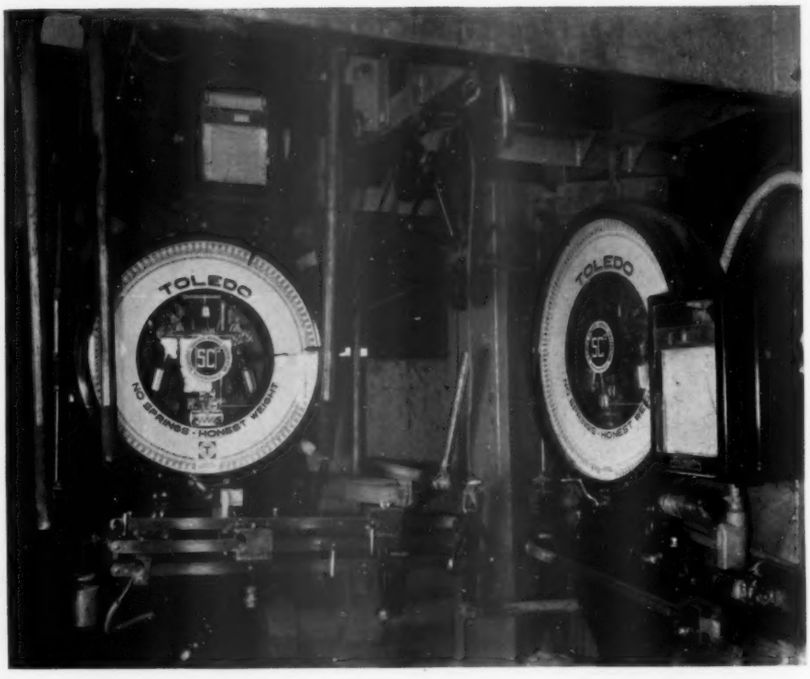
used. These figures are for a concrete of 2,800 pounds per cubic inch designed compressive strength. Actually no cylinders have tested less than 3,000 pounds and few have exceeded 4,000 pounds. The mixes are designed by absolute volume and the yield has worked out within 1 per cent. of the designed figure. The SC_2 control system has made possible accurate and consistent batching and uniform strengths without cement waste. It has also made possible accurate control of slumps. Four-inch and 7-inch slumps have been produced alternately and accurately from the same plant.

The sand and gravel aggregates are received in barges and are unloaded separately by 1½- and 2-cubic yard stiff-leg derricks into a steel bin. A swinging Barber-Greene boom belt-conveyor is used to discharge the various aggregates to separate stockpiles over a reclaiming tunnel. The storage capacity is 600 cubic yards for sand and 1,000 cubic yards for gravel. In the tunnel are 6 clam-shell gates—3 for sand and 3 for gravel—over each of the two reclaiming belt-conveyors. These conveyors run in opposite directions and discharge on Barber-Greene belt-conveyors which are at opposite ends of the tunnel and carry aggregates to the bins of both plants.

Aggregate and cement batchers for plant Number 1, with cement screw at left.

The Allentown Portland cement used is received in bulk in special cars. Two combinations of screw-conveyors and bucket-elevators feed it into a 2-compartment Butler steel bin with a capacity of 5 carloads. This bin serves both plants.

The Number 1 plant has a 150-ton Butler 3-compartment aggregate bin with lever-operated clam-shell gates which control the discharge to the Butler 4-cubic yard weighing batcher. This batcher was originally connected to an SC_2-Toledo self-compensating scale equipped with an Esterline-Angus graphic recorder which records the quantities of sand, gravel and water going into each batch and the compensations made. This scale was recently replaced with an improved fully-enclosed cabinet model in which the compensating disks are automatically lifted from their hangers. This saves a few valuable seconds per batch.



General view on the batching floor showing both scales. Note the compact arrangement.

The 2,200-pound-capacity water-weighing tank is attached to this hopper and is fed from a larger tank through a solenoid-controlled valve which automatically feeds the desired amount. Water is discharged from the weighing tank through a quick-action hand valve.

The cement falls from its bin through a rotary gate into an inclined screw-conveyor which carries it to the Butler 2500-pound-capacity cement weighing batcher. This is connected to an SC_2-Toledo dial scale which is also equipped with an automatic graphic recorder. The cement feed is started by means of a push-button but is cut off automatically. When the weight comes within 80 pounds of that required, the feed is cut down to a dribble. Two mercoid switches control this operation. The cement, aggregates and water are discharged together through a converging hopper into truck-mixers below.

Plant Number 2 has a 300-ton-capacity Butler 2-compartment aggregate bin with lever-operated discharge gates. The cement is fed from the common cement bin by another inclined screw-conveyor. All the weighing is done in a 2-compartment Butler batcher on which the water tank is mounted. A single SC_2-Toledo dial scale with 4 beams, two of which are equipped for moisture compensation, is used.

Plant Number 1 is the more efficient of the two and produces most of the concrete. It loads one truck-mixer per minute when necessary, and has loaded 32 truck-mixers in 30 minutes. Plant Number 2 loads truck-mixers at the rate of one every two minutes and acts as an auxiliary when the demand is great. A fleet of 35 truck-mixers is ordinarily used and at least 3 of these are rented from Conserco, Inc. Included in the fleet are 3½-, 4-, and 5-cubic yard machines but they all mix 4-cubic yard batches. Chain Belt Rex mixers are used exclusively and most of them are mounted on Brockway and International truck chassis.

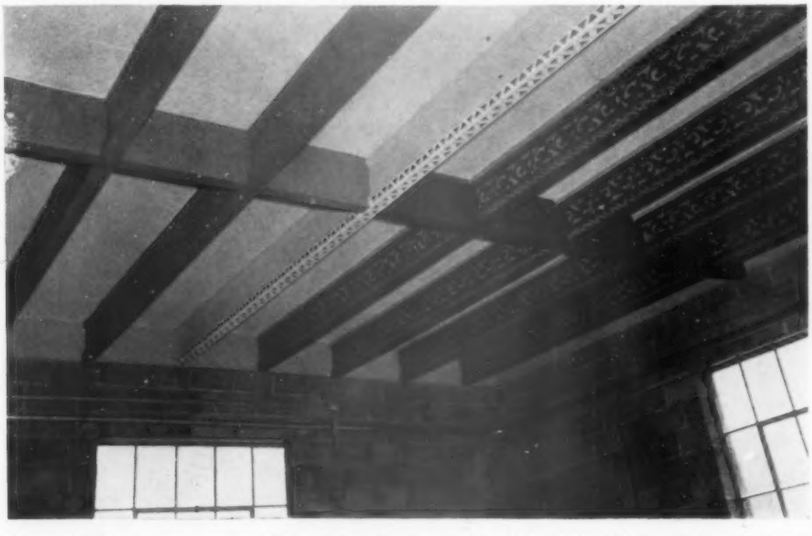
One of the truck-mixers taking on a load of concrete.

Buffalo Plant Holds "Open House" to Acquaint Prospects with New Product

THE Gravel Products Corporation of Buffalo, New York, has long been a leading producer of sand and gravel in that area and, under the guidance of E. M. Hammond, president, has successively added the production of related products. The first such addition in 1930 was ready-mixed concrete and the company now operates a fleet of 28 truck-mixers from its three yards in the Buffalo area. The next addition, in 1936, was concrete pipe. The important market developed for this product has required the expansion of the original plant. In 1938 a department was added for the manufacture of Dunbrik and other related products. The latest addition, which rounds out this complete line of products, is a plant for the manufacture of Lith-I-Bar concrete joists. This modern new plant is located near the pipe-and-products plant in Tonawanda, a suburb a few miles north of Buffalo.

Mr. Hammond is a great believer in the value of publicity and has launched each of these new lines successively with formal dedication ceremonies and an "open-house" to which architects, engineers, municipal officials, builders, newspaper men and all other interested parties were invited. Each of these dedications has been a great success both gastronomically and from the standpoint of attendance and each new product has got off to a flying start. The formal opening of the new Lith-I-Bar joist plant was held on June 6 and in every way outdid the earlier occasions. The more than 250 invited guests witnessed a demonstration of joist manufacture and listened to short addresses by men with long experience in the manufacture and use of these joists. The lunch and refreshments provided were also not overlooked and these were served in a 30- by 50-foot tent near the plant.

Part of the crowd in attendance listening to one of the speakers talking from mixing platform.



Exposed joists in one corner of the plant showing variety of effects which may be obtained.

The "open-house" was part of a well-balanced program planned by Mr. Hammond to introduce this product in this territory. It was preceded by extensive investigations of the various methods of joist manufacture in use and of the potential market. Descriptive literature was mailed to all those invited to the opening and this is being followed up with successive mailings. Included in the series is an 8-page booklet using the subject matter from 8 posters which were exhibited at the plant opening. The literature includes all the information and test data necessary for the use of these joists in any type of structure from residences with live floor loads of about 40 pounds per square foot to buildings of heavy-duty construction such as warehouses, breweries, etc. The company offers the user of this product an engineering service which is not only a great convenience to him but also insures that the product is used to the best possible advantage.

Arthur P. Skaer, of Crooker, Carpenter and Skaer, Inc., general contractors of Buffalo, N. Y., was master of ceremonies. He introduced the first speaker, F. N. Menefee, Professor of Engineering Mechanics, University of Michigan, who has been closely connected with the development of the Lith-I-Bar

The joist plant with elevator and aggregates bin in foreground.

joist since 1930. According to Professor Menefee, he was first asked in that year to make tests of this joist, which he admitted that he did with some skepticism because of their seeming frailty. However, the joists passed the most stringent tests with flying colors and the results were later corroborated by Portland Cement Association and other tests. Since then Professor

Professor F. N. Menefee and Arthur P. Skaer, participants in the ceremonies.

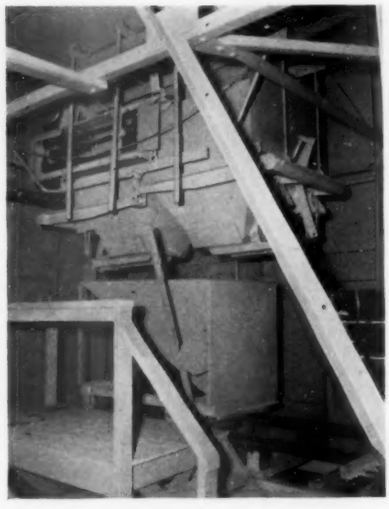
Menefee has been an ardent advocate of the use of these joists and has seen them gain widespread popularity in various sections of the country.

The next speaker was Raymond M. Stapert, of Louis C. Kingscott and Associates, architects of Kalamazoo, Michigan, who substituted for Louis C. Kingscott on the program. Mr. Stapert described the uses his firm has made of these joists on many large and small structures and the gratifying results obtained. These joists were made by the Precast Units Company of Kalamazoo.

H. S. Hicks, sales engineer of the Precast Units Company, spoke of his personal experience in the use of these joists when he was a construction superintendent before joining this company. It was this experience, he said, which convinced him of their possibilities and induced him to participate in their manufacture and sale. He mentioned particularly the saving in time made possible by the use of these joists. In the construction of the Michigan Union, a large dormitory, dining room, etc. on the University of Michigan Campus, he said, the use of Lith-I-Bar joists was chiefly responsible for its completion six weeks ahead of schedule.

Then followed a demonstration of the manufacture of Lith-I-Bar joists which was made under the direction of J. W. Callahan, production manager of the company's tile, brick and joist plants.

This company's compact and efficient new joist plant was designed and built especially for the manufacture of this product and is in itself a demonstration of the artistic effects obtainable with it. The 34- by 124-foot main plant building has concrete floors, steel-sash windows, and walls of 12-inch Haydite concrete blocks. An extension of the building provides space for the aggregate bins, mixer, etc. The roof of the main building is of standard Lith-I-Bar construction with 14-inch joists 35 feet long which pro-



Two - compartment aggregate - weighing batcher and lorry which feeds the mixer.

vide a clear span of 34 feet. A 2½-inch thick concrete slab was poured in place over the joists and this is covered with built-up roofing. Each of several panels of six joists is of a different pastel color, one is in natural gray, and several stencilled designs are also used. Medusa cement paints were employed.

The versatility of these joists is also well illustrated in this plant. In the mixer and hopper bay two standard beams were placed side by side and the space between them was reinforced and filled with concrete integrally with the roof to give

The joist machine and mixer.

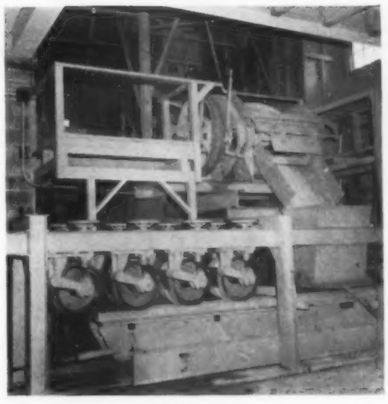
the necessary added strength. The cross beam is of similar construction. The plant design provides for the future addition of two rooms for the production of concrete blocks and of cast work.

The aggregates used in this plant are standard size light-weight FX Haydite and New York State grit (lake sand). These are brought to the plant in trucks and dumped into a steel hopper. A 40-foot Columbus bucket-elevator discharges these materials into a 3-compartment, 60-ton Butler bin. Two compartments are used for Haydite and the other one for sand. A 2-compartment Butler weighing batcher measures the aggregates into a 1,200-pound capacity lorry from which it is discharged into a 30-cubic foot Besser mixer. Water is measured into the mixer by a Buffalo water meter. Lehigh high-early-strength cement is used and this is measured into the mixer from sacks. This cement is received in trucks and is unloaded into a storeroom from which it is delivered to the mixer floor as needed by a chain elevator. The concrete is designed for a compressive strength of 3,500 p.s.i.

From the mixer the concrete is discharged into the standard Dunn Manufacturing Company Lith-I-Bar joist machine which makes joists in 6-, 8-, 10-, 12- and 14-inch depths and in any length up to 36 feet. The carriage on which the joists are made travels under 10 forming wheels. Only the first four wheels are used when 6- or 8-inch joists are made. For 10-inch joists the first six wheels are used and for the 12- and 14-inch joists all ten wheels. Thirty-six foot pallets are employed and when possible the shorter joists are made in multiples. The traveling carriage runs over a cam or inclined center rail which lifts the joists evenly out of the mold box on their pallets so that the offbearer is operated by a Master electric hoist with a 2-way single drum and an integral gear-reducer. This is mounted on a Shaw overhead crane built to Dunn specifications and which has limit switches which automatically stop its travel at each end of the runway. This equipment lifts the joists on their pallets to steel frames in the steam-curing room. When filled, this room is closed by means of sectional doors and is covered with canvas. When the curing period is over the doors and the canvas are removed and the joists are taken out by another offbearer, which consists of a Budgit 1-ton hoist running on two transversal I-beams. It runs from these to an I-beam placed longitudinally and thence to a monorail leading to the outdoor storage yard.

Group which includes, left to right: J. W. Callahan, production manager; F. E. Milewski, W. E. Dunn Manufacturing Company; S. Ericksen, F.W.A. project engineer; J. B. Madden, Syntron Company; and E. M. Hammond, president of the Gravel Products Corporation.

Manager Callahan and five different sizes of joists made in the plant.



Close-up view of the mixer, batcher and the rollers which compact the concrete into the joist forms.

The joist machine has a capacity of 20 pallets or up to 720 feet of joists per hour, depending on the lengths of the joists being made.

The joists are manufactured under a pressure of 2,000 p.s.i., which results in a uniformly dense concrete perfectly bonded with the reinforcing unit. All the hazards of manufacture under field conditions are eliminated as the factory method of production insures a uniform product of the highest quality. The use of light-weight aggregates not only offers an economy in construction but also produces considerably more fire-resistance value than if ordinary aggregates were used.

The joists and their reinforcing units are made according to A.S.T.M. specifications. The joists for each job are designed for the particular span, floor load, etc. required, and the reinforcing units are also "tailor-made." On one side of the building is a bench where the reinforcing units are assembled and welded together according to standardized lay-outs.

The early demand for these joists has been very gratifying and capacity operation is expected for some time to come. All the company's other facilities are also working overtime to supply the demand which comes chiefly from the vast war industries centered about Buffalo. The company's production of sand and gravel is expected to exceed the 1941 all-time record of over 200,000 cubic yards. This output comes from the dredge *Niagara,* a complete floating plant with a patented screening lay-out, which on its daily trip out into Lake Erie brings back a 2,000-ton load of sized aggregates to the company's three water-front yards.

The CONCRETE MANUFACTURER

Cleveland Firm Re-enters Concrete-Block Field After 25 Years' Absence

THE Cleveland Builders' Supply Company of Cleveland, Ohio, has been long one of the largest producers and sellers of various types of building materials. Since its foundation 50 years ago this month its history has been closely tied to the trends and developments in the building industry. At one time the company had 44 yards or producing plants in the Cleveland area and these included 10 clay brick and tile plants and a slag plant. When the local supplies of clay were exhausted, the latter plants were shut down. In recent years the yards and other plants have been consolidated so that at present the company is doing a large business from only 18 different locations. Included are a plaster mill, a sand pit, warehouses, brick plants, river docks, coal yards, ready - mixed - concrete plants, etc.

The company entered into ready-mixed-concrete production in 1929 and soon became one of the leading manufacturers in this field. In the past two years it has also engaged in the production of concrete on a large scale from temporary plants for large government projects connected with the war effort.

About 25 years ago the company discontinued the manufacture of concrete products. The perfection of vibrating block machines was an important factor in the decision to re-enter this field. The new block plant went into operation in January 1940 with one Stearns Number 9 Jolt-

ABOVE — Storage yard of Cleveland Builder's Supply Company.

●

BELOW — Curing rooms with plant in background.

crete vibrating block machine. Provisions were made for the installation of additional machines. One was added in May 1940 and another in April 1941. The plant is centrally located in the South Side in-

Truck dumping aggregate into two-compartment 150-ton bin.

dustrial district of Cleveland near the business section and fast-growing residential areas. It was designed by C. E. Ehle, general superintendent of the company's operations.

In the new block plant Celocrete light-weight aggregate is used exclusively. Masons prefer the light blocks, as do architects and builders. They are only slightly more expensive than sand-and-gravel blocks and are delivered anywhere in Cuyahoga County for 15 cents each in truck-load lots. They are nailable and light in color. The standard 8- by 8- by 16-inch blocks weigh about 29 pounds each. Using a no-slump concrete, 24 blocks are obtained per sack of cement. Although a strength of 700 p.s.i. is required, these blocks test over 1,000 pounds and their other qualities are in proportion.

The plant is located in an old clay pit which makes possible gravity handling of the aggregates and cement. The two grades of Celocrete are dumped from trucks into the two compartments of a 150-ton bin. Bulk cement is discharged from special self-unloading trucks into a 40-ton bin. The two sizes of Celocrete are Grade B (¼ to ½ inch) and Grade C (¼ inch to dust), which are used in a 4 to 1 ratio.

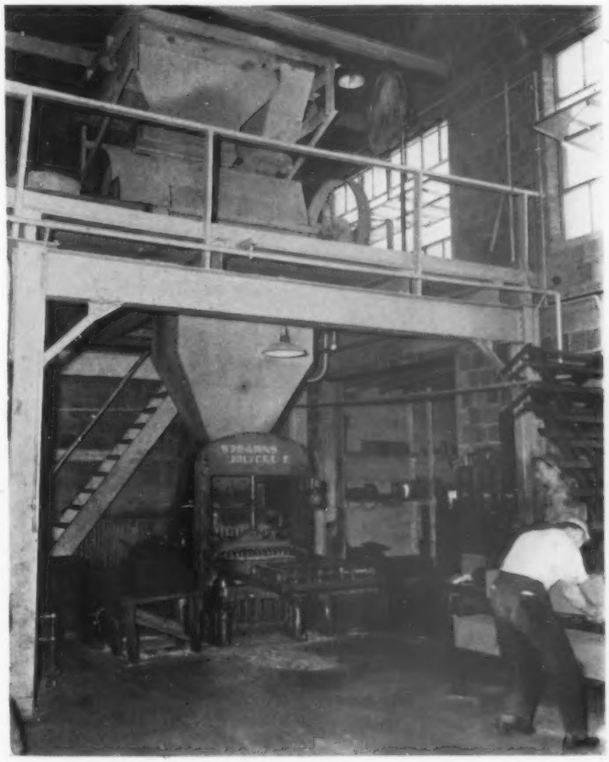
These bins are arranged in a row and the various ingredients for a batch are weighed out into a Butler traveling weigh-lorry with separate cement and aggregate compartments and a multiple-beam scale. This lorry feeds the three 42-cubic foot Stearns mixers which have been built up so that they can actually mix 44 cubic-foot batches. This extra capacity is used only when large blocks are being made.

Although standard blocks form the bulk of the output, 27 different types and sizes of blocks and bricks and many specials are made on these three machines. Each machine can make 4,500 standard blocks in an

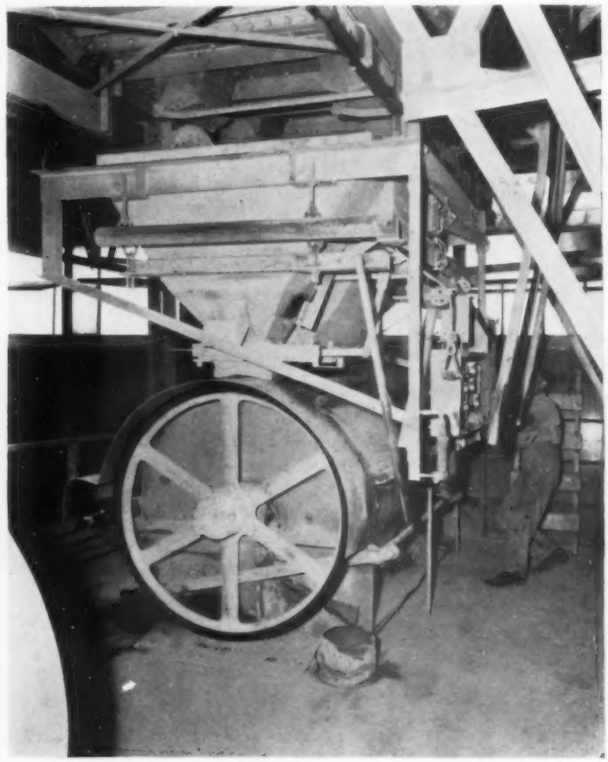
Gasoline lift-truck which carries blocks to and from storage.

8-hour day. During periods of great demand, however, the plant has operated 21 hours daily with two shifts and a 1½-hour clean-up period. The daily output on this schedule is 30,000 standard blocks. Each machine makes 40 standard concrete bricks at once and 30,000 are produced in 8 hours on one machine. These are sold entirely for back-up work. An Edmonds cast-stone machine is also used to make lintels, sills, etc., up to 6½ feet long and from 1- by 1-inch to 20- by 20-inches in cross section.

The products are loaded on Chase steel racks, which will hold 72 standard blocks and are hauled by a Clark gasoline lift truck into the



One of three block machines with mixer and weigh lorry above.



Weigh lorry above one of the 48-cubic foot mixers.

seven 91-foot long concrete-block-walled steam-curing rooms. A 90-horsepower boiler maintains a steam pressure of 15 pounds and a temperature of 180 degrees F. After a minimum curing period of 14 hours the loaded racks are removed by an Erickson gasoline lift truck to outdoor storage. The yard has a total capacity of over 800,000 blocks and has three concrete runways each over 400 feet long. Included are three storage sheds, with a total capacity of 100,000 blocks, which are used for loading trucks in winter or in bad weather. The company operates a fleet of over 100 trucks for all its departments and hires others as needed.

The Baraboo Concrete Products Company has been established at Baraboo, Wisconsin, by A. L. Brown of Virginia, Minnesota.

Also under construction at Baraboo, is a temporary plant of the American Pipe Construction Company, Los Angeles, which will manufacture reinforced-concrete pressure piping for use in the Badger Ordnance Works powder plant.

Truck drivers of the Colonial Sand & Stone Company of New York City who have avoided accidents for more than a year were awarded War Savings Stamps and medals at a dinner at Hotel Pennsylvania recently.

Buy a security that means security
—A Defense Bond or Stamp

KIRK & BLUM

STEEL FORMS
***for* Concrete Joists**

These forms are made in standard 20-ft. lengths. Also special lengths to meet individual requirements. The illustration above shows method of removing complete set of poured joists, which permits multiple production where desirable or feasible.

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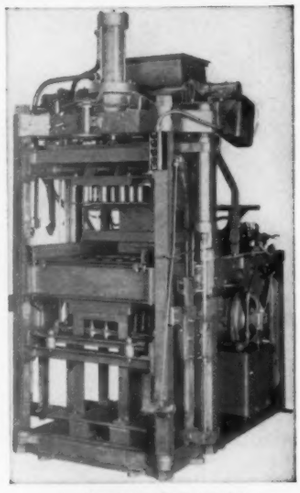
Why not BUY the LATEST FASTEST and BEST PRODUCTION BLOCK MACHINE



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KENT MACHINE CO.
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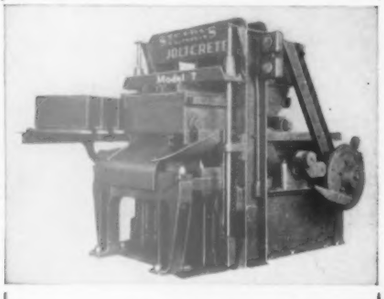
The Vibration Machine Supreme



Vibration under pressure — 7,200 blows per minute—and ruggedly built to give long life, the Joltcrete machine is the choice of the wise concrete-products operator. Produces clean-cut, high strength units in any size, and gets the most out of a bag of cement. Built in three sizes with capacities of 7 to 9 standard units per minute.

Hobbs block machines, Anchor tampers, Anchor Jr. strippers, Stearns power strippers and Joltcrete, Stearns mixers and Cast Iron and Press Steel pallets, Straublox oscillating attachments, etc. Repair parts for: Anchor, Ideal, Universal, Stearns, Blystone mixers and many others.

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G. M. Friel, Manager Columbus, Ohio

For Sale—Besser Victory Stripper with 3″, 4″, 6″, 8″, and 12″ attachment.

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"For Sale, One Cinder Crusher, New Holland, 4 Roll, 10 x 16″ with Vee belt drive and motor. One Vibrator Screen. One Magnetic Pulley with motor driven generator. Assortment of spare parts. Above equipment has not handled over 500 yds. of cinders and is like new. Cost new over $2500.00. Can be had for $1350.00 f.o.b. cars, eastern Iowa. Offered subject to prior sale."

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Adrian, Michigan

SAUERMAN
Long Range
MACHINES

Handle More Tons for LESS Money

Almost any excavating or stockpiling job can be simplified by using a SAUERMAN Drag Scraper or Cableway.

These machines dig, haul and dump in one economical straight-line operation. Readily adaptable to varying digging conditions, they will move a given tonnage of materials in less time than any other machines of comparable price.

Because they require but a single operator, consume little power in operation, and require practically no maintenance, they cut costs to the bone.

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CHARGE, MIX and DISCHARGE FASTER THAN ANY OTHER TRUCK MIXER — We can PROVE IT!
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2 TO 5 YD. SIZES
PRODUCE HIGHER STRENGTH CONCRETE by reason of JAEGER'S exclusive END-TO-END DUAL-MIX with THROW-BACK BLADES We can PROVE IT!
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Portable 2-3 Yd. Hopper: Eliminates waiting—averages 25% more payloads. Tows behind truck mixer.

Combination Top or End Loader — to meet conditions. Only end loader that does not constrict drum opening or require moving Hopper to discharge.

THE ONLY LINE THAT MEETS EVERY SPECIFICATION and DEMAND — Outsells All Other Makes

Jaeger, alone, offers maximum payload production of highest quality concrete in units with standard 2-Speed Transmission (Separate Engine or Vacuum-Controlled Truck Engine Drive), One-Shot Top Loading, Vacuum-Controlled High Discharge Door, End-to-End Water Sprays and Dual-Mixing in Sealed Drums. Also Combination Top or End Loaders for older or temporary plants not equipped for fast ribbon loading.

Send for complete catalog and prices — 2 to 8 Yd. sizes.

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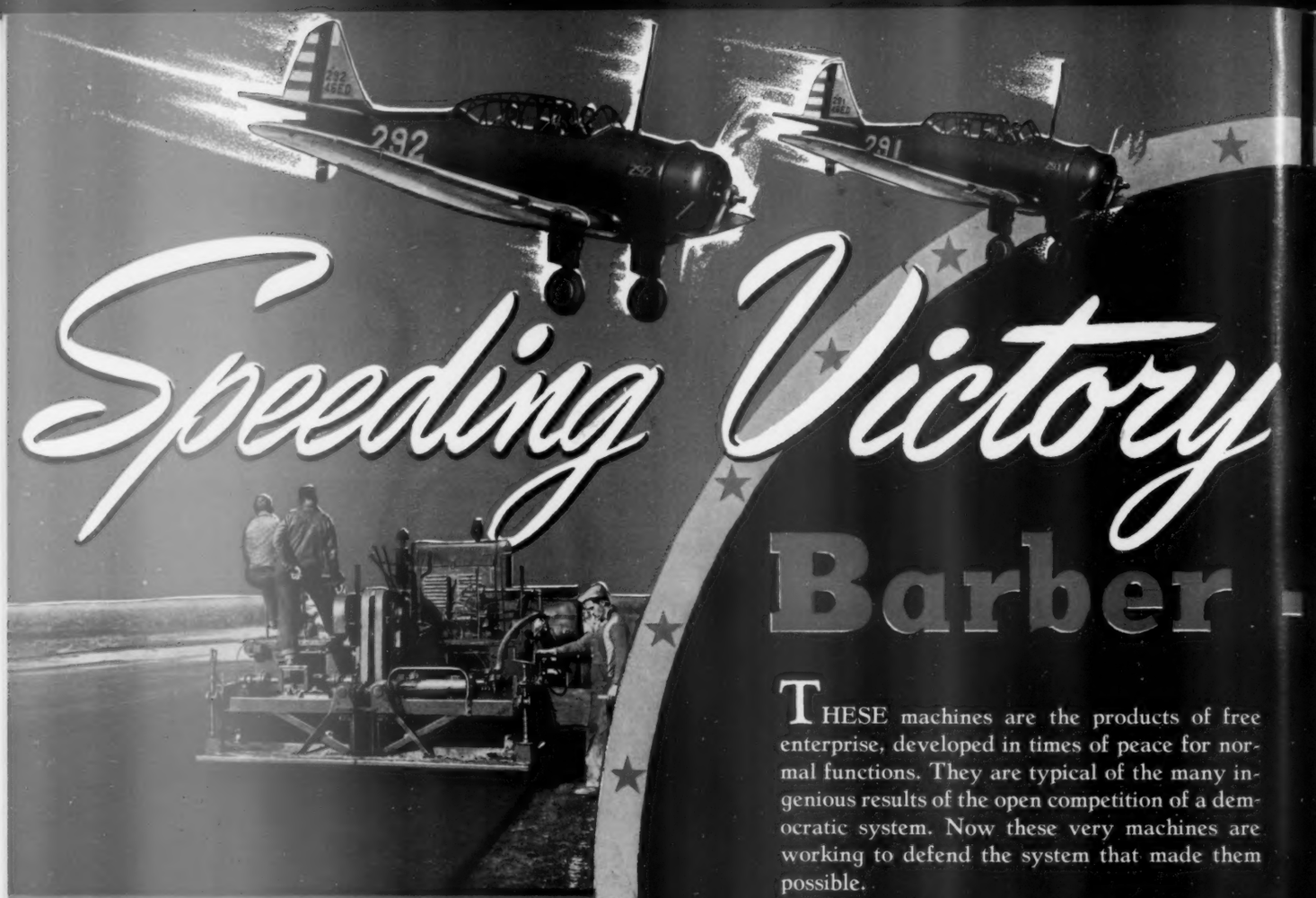

Speeding Victory

Barber-G

THESE machines are the products of free enterprise, developed in times of peace for normal functions. They are typical of the many ingenious results of the open competition of a democratic system. Now these very machines are working to defend the system that made them possible.

There is much more to defense than munitions . . . the building of camps, airports, roads, igloos

BARBER-GREENE COMPANY

B-G FINISHER laying runways for [redacted] Bomber Assembly Plant Airport, [redacted] The B-G Finisher receives the asphalt mix from trucks, evenly spreads it, compacts it to a uniform density, and automatically lays a level surface even over an irregular sub-base.

B-G PORTABLE CONVEYOR placing earth backs concrete into heavy fire shells will be stored. This same conveyor is also used for handling concrete, aggregate, and many other bulk materials of the Defense program.

B-G SNOW LOADER clearing city streets at from 10 to 20 yards per minute. The Snow Loader has proven to be essential in the Defense producing areas.

B-G TRAVEL PLANT mixing sand asphalt for [redacted] U. S. Navy [redacted] It is delivering [redacted] cubic yards of dried material per minute in this picture.

B-G "GOOSENECK" COAL LOADER, one of many being used for handling coal and coke for heating hangars and airport offices both in the United States and Canada.

B-G CAR UNLOADER. Many of these Barber-Greene are being used for handling coal by the U. S. Quartermaster Corps. This Barber-Greene slips under the car and is practically automatic after being started.

Deletions made by Barber-Greene to comply with current censorship.

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—a thousand major products—requiring almost every commodity used in our normal life—now required in a sudden rush of multiplied quantities. The ingenuity and unequalled efficiency of American products combined with the American spirit is responsible for the rapid progress of the defense program—a spirit that is showing the difference between being pushed together, and pulling together.

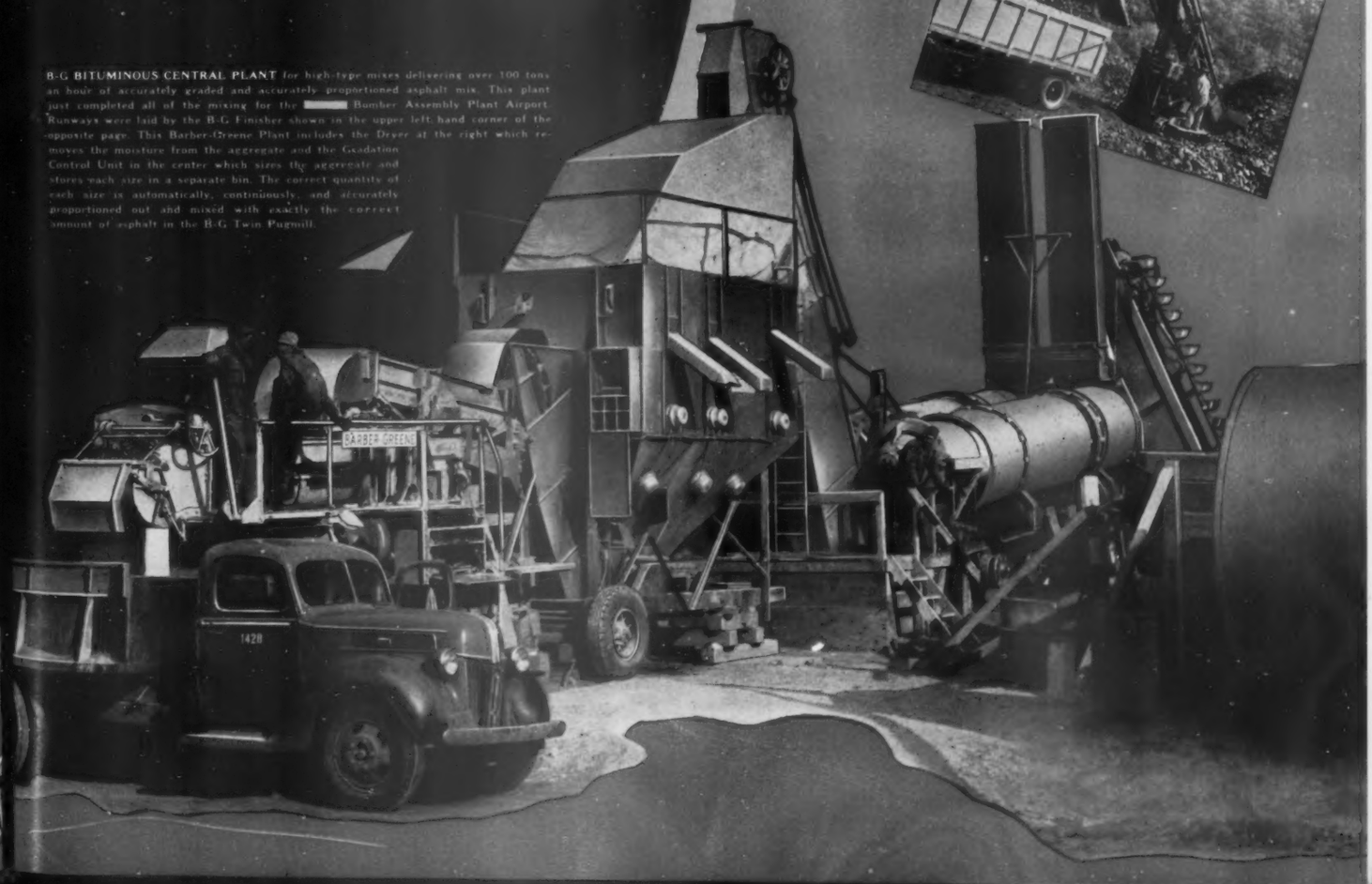
AURORA, ILLINOIS, U. S. A.

B-G DITCHER digging building foundations for Ordnance Plant at [redacted]. This same machine is being used for cutting for tile drainage, sewers, water, gas, and electric conduit.

B-G PERMANENT CONVEYORS are being used in many Defense projects. This is a typical application elevating sand and gravel to a central screening plant and storing the various sizes.

B-G BUCKET LOADER. This pneumatic tired Barber-Greene delivers 1½ yards per minute. The large B-G Crawler Mounted Bucket Loader has a capacity of over 3 cubic yards per minute.

B-G COAL LOADERS are speeding the loading of trucks at various military stations. This Barber-Greene is crawler mounted, and easily delivers over two tons per minute.



B-G BITUMINOUS CENTRAL PLANT for high-type mixes delivering over 100 tons an hour of accurately graded and accurately proportioned asphalt mix. This plant just completed all of the mixing for the [redacted] Bomber Assembly Plant Airport Runways were laid by the B-G Finisher shown in the upper left hand corner of the opposite page. This Barber-Greene Plant includes the Dryer at the right which removes the moisture from the aggregate and the Gradation Control Unit in the center which sizes the aggregate and stores each size in a separate bin. The correct quantity of each size is automatically, continuously, and accurately proportioned out and mixed with exactly the correct amount of asphalt in the B-G Twin Pugmill.

The CONCRETE MANUFACTURER

JOHNSON

A "thumbs up" LINE

CENTRAL MIX PLANTS

CEMENT HANDLING EQUIPMENT

ROADBUILDERS' BINS AND BATCHERS

CONCRETE BUCKETS

SMALL MIXER BATCHING UNITS

JOHNSON PRODUCTS have continually, over a period of 20 years, maintained leadership in the design and construction of Concrete Mixing Plants. From the world's largest Central Mix Plants at Grand Coulee and Shasta Dams to the "Little Titan" Platform Scales, JOHNSON designs and builds batching equipment to meet the needs of all contractors large and small.

JOHNSON PRODUCTS do not rest on past laurels. Every item of the JOHNSON line is subject to constant redesign, study, improvement and alteration to meet requirements of changing conditions. Patented and exclusive features in Central Mix Plant design, portability and adaptability in Roadbuilders' Equipment, time and labor saving factors, sturdy construction and functional merit throughout have marked the years of JOHNSON PROGRESS.

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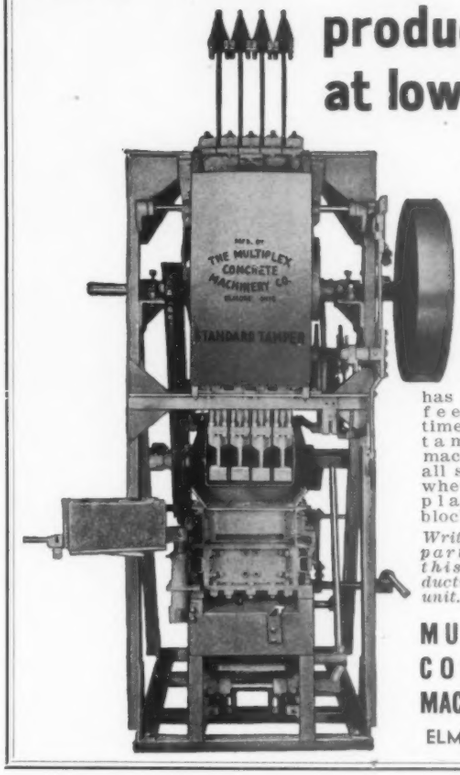

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Write for full particulars on this high production, low cost unit.

MULTIPLEX CONCRETE MACHINERY CO.
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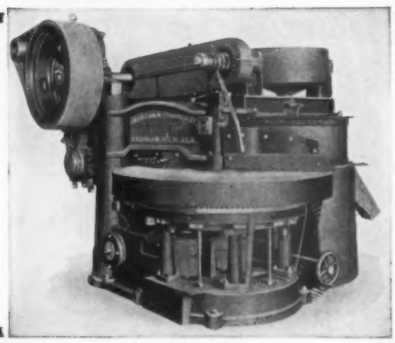
J & C Machines help to "brick" the AXIS



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The CONCRETE MANUFACTURER

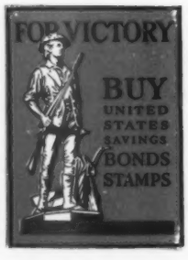
United States Motors Bldg., Milford, Conn.
Architect: Leo F. Caproni, New Haven, Conn.
Contractors: Frank P. Sullivan, East Haven, Conn.
Stearns Joltcrete Cinder Blocks furnished by Hamden Building Tile Company, Inc., Hamden, Conn.

Face brick used on exterior wall surfaces. Cinder block interiors exposed and painted.

With Stearns Joltcrete Blocks you get the best building jobs

The Stearns plant is working on military equipment —day and night—and will be for the duration. Every man and every machine is straining the utmost in the war effort.

From a rapidly dwindling backlog supply of new machines we are still able to deliver "Joltcrete" and "Clipper" Block Machines, Mixers and Skip Loaders to those who need them for necessary construction work. Our inventory of spare parts, built up in anticipation of the current situation, is ample to service machines now in the hands of our customers.



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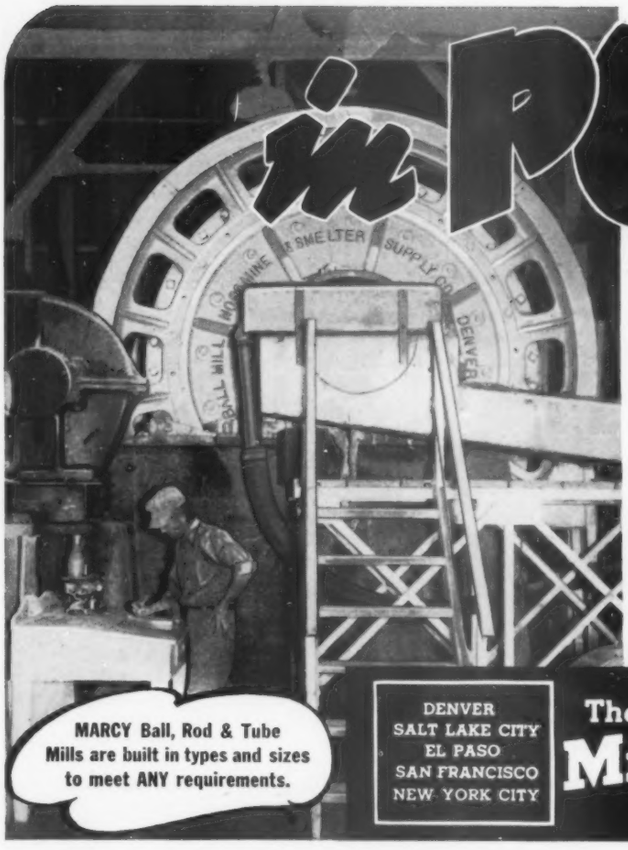
Manufacturers of Complete Equipment for Concrete Products Plants



in POTASH

In this modern Potash plant two 5'x18' Marcy Tube Mills, one 6'x6' and one 8'x6' Marcy Ball Mill are helping speed production of a chemical product now critical to the nation's needs. Thruout the Americas, in Africa and "Down Under," Marcy Mills are contributing to a bigger day's work.

★YOU CAN GET MARCY MILLS for grinding any materials favored by war priorities. Write or wire, stating your specific grinding problem — *wet or dry.*

Genuine Wilfley Tables, Rock Bit Grinders, Density Controllers, Amalgamators, Belt Feeders, Rubber Pinch Valves, LABORATORY EQUIPMENT, MINE AND MILL SUPPLIES, COMPLETE MILLING PLANTS.

MARCY Ball, Rod & Tube Mills are built in types and sizes to meet ANY requirements.

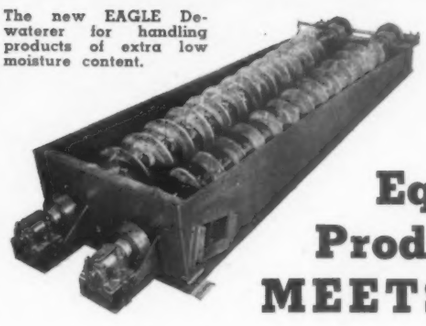
DENVER
SALT LAKE CITY
EL PASO
SAN FRANCISCO
NEW YORK CITY

The Mine & Smelter Supply Co.

CANADIAN VICKERS, LTD. *Montreal*
W. R. JUDSON *Santiago, Lima*

EAGLE

The new EAGLE Dewaterer for handling products of extra low moisture content.



Equipment for Sand and Gravel Producers . . . MEETS EVERY REQUIREMENT

EAGLE ENGINEERING SERVICE is always available when you need help on your production problems . . . in washing sand and gravel . . . or recovering deep deposits. Let Eagle engineers show you how to maintain your present equipment in efficient working order for the duration.

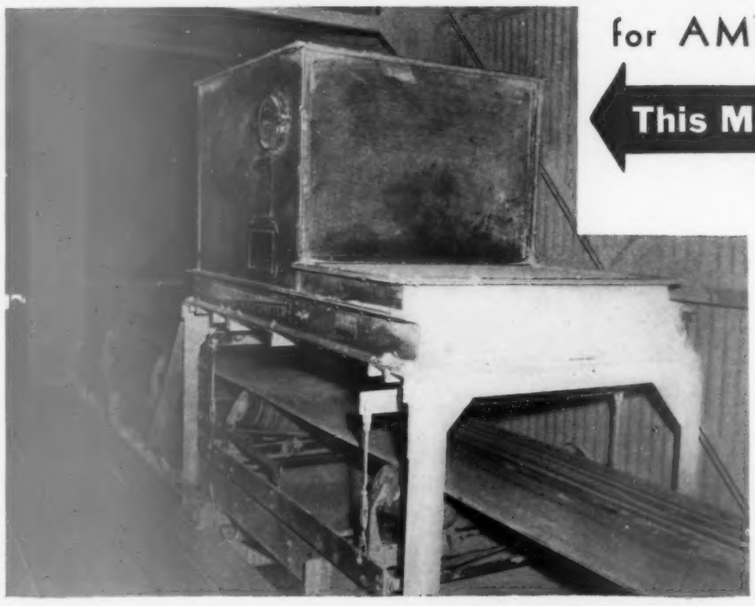
EAGLE WASHERS are built in the Spiral Screw and Paddle Log type . . . Many sizes. EAGLE "Swintek" Ladder with patented Screen Nozzle Head is industry's standard for working difficult deposits.

EXPRESS SERVICE on Quality Replacements and Repair Parts

The new EAGLE High-efficiency Paddle Washer for medium capacity operations.

EAGLE IRON WORKS
Des Moines, Iowa *Write for Bulletin 41*

Weighing Phosphates in Transit



MERRICK Weightometer on feed conveyor in AMERICAN CYANAMIDE plant

for AMERICAN CYANAMID

This MERRICK Weightometer

is doing a man-size job in the Brewster, Florida plant of American Cyanamid.

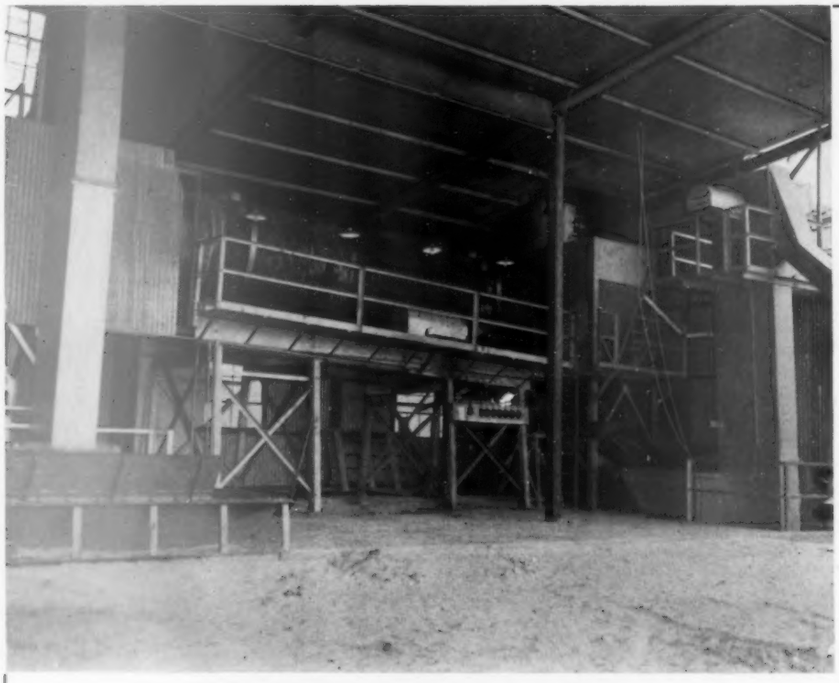
The Weightometer weighs and records the dry weight of material going into the 30,000 ton capacity storage building.

Where bulk materials are handled by belt conveyors, the MERRICK Weightometer insures an automatic, constant and accurate record of weights in transit.

MERRICK Feedoweight is another time-saving unit that provides a continuous feeder scale for automatically registering and feeding materials by weight.

Write for Information

MERRICK SCALE MFG. CO., 183 SUMMER STREET PASSAIC, N. J.

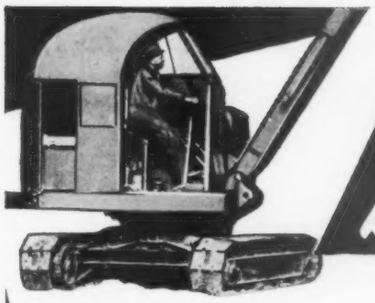


60 in. x 30 ft. Direct Oil Fired Rotary Dryer.

MANUFACTURERS OF ROTARY DRYERS, STEAM COIL DRYERS, DREDGING PUMPS, SCREENS, ELEVATORS, CONVEYORS AND OTHER EQUIPMENT FOR HANDLING SAND AND OTHER MINERAL PRODUCTS; ALL DESIGNED TO MEET YOUR REQUIREMENTS.

THE MILLVILLE IRON WORKS

SIXTH AND FLORENCE AVENUE
MILLVILLE, NEW JERSEY



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ROLLED STEEL CONSTRUCTION
for GREATER STRENGTH and SPEED

BULLDOG GRIP

● There is tremendous closing power in Williams Buckets. That's why they bite so deeply and cleanly in hardpan digging, or work so proficiently in clearing rubble, lifting rocks or slabs of concrete.

Williams Buckets are "built to last and move dirt fast". All-welded construction at vital points imparts greater strength while eliminating excess weight; only riveted at sections which may ultimately require replacement. Another important exclusive feature of the Williams bucket, illustrated in action, is straight line reeving that reduces wear and prolongs cable life.

Many definite reasons why your next bucket should be a Williams are found in the individual bulletins completely describing each type of Williams Bucket. Sent free on request.

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Distributors in all parts of the country

WILLIAMS *Buckets*

***built by* WELLMAN**

VICTORY
in war requires the utmost in PRODUCTION

Our race to produce as much as possible in the shortest time begins at the source of supply. In quarries and sand and gravel pits, LIMA cranes, shovels and draglines are adding to the striking power of our nation by helping to speed up the output of materials vital to our all-out effort. If your output is lagging take advantage of what Lima has to offer in greater speed, greater efficiency and lower cost of operation. LIMA cranes, shovels, and draglines are built in eight different sizes.

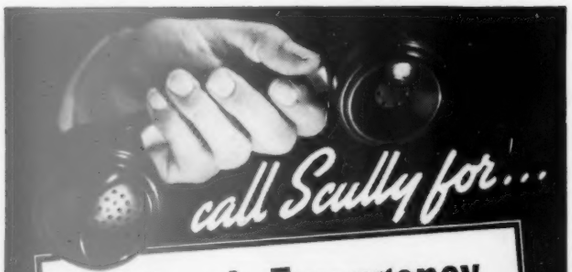
LIMA SHOVEL OWNED BY JACKSON MATERIAL COMPANY, VINITA, OKLAHOMA

CAPACITIES

Shovels	¾ Yd. to 3½ Yds.
Cranes	13 Tons to 65 Tons
Draglines	Variable

LIMA LOCOMOTIVE WORKS, INCORPORATED

SHOVEL AND CRANE DIVISION — **LIMA, OHIO**



National Emergency Alloy Steels

TO save critical materials such as nickel and chromium, "National Emergency Alloy Steels" have been developed as substitutes for the old style alloy steels. These new alloy steels cover a wide range of properties and were especially designed to meet present conditions. Many of them are actually out-performing the steels previously used.

Our stock of these "National Emergency Alloy Steels" is now coming in. We welcome your inquiries and orders and would be happy to assist you in determining the grades best suited to your needs. Telephone, wire or write the Scully Warehouse nearest you.

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UNITED STATES STEEL

SOME CALL IT INTESTINAL FORTITUDE

STEAM—GASOLINE—DIESEL LOCOMOTIVES—ELECTRIC OR MECHANICAL DRIVE

STEAM—GASOLINE—DIESEL LOCOMOTIVES—ELECTRIC OR MECHANICAL DRIVE

DAVENPORT Builders of the World's LOCOMOTIVES

Others have a shorter name. Individually and as a nation, Americans can't be licked. No matter how long or tough the going, they'll be in there "pitching" until VICTORY—FREEDOM FOR THE ENTIRE WORLD—has been WON. The ability to do a hard job WELL over long periods is built into every Better-Bilt Davenport we are sending out on scores of vital assignments for our Army, Navy, Our Allies, and American builders of war goods and war facilities. Davenport staying power insures splendid performance with more than ordinary FREEDOM FROM REPAIRS. To the many users of Davenport we say "Keep them in Good Condition. We'll cooperate with you to the utmost of our abilities."

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QUAKER – *has*
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BELTING —for Conveyor—Transmission—and Elevator.

HOSE —for every conceivable purpose; air, water, steam, acid, oil, etc. Also a complete line of Fire Hose.

PACKING —Rod and Sheet—all types used extensively in all industries.

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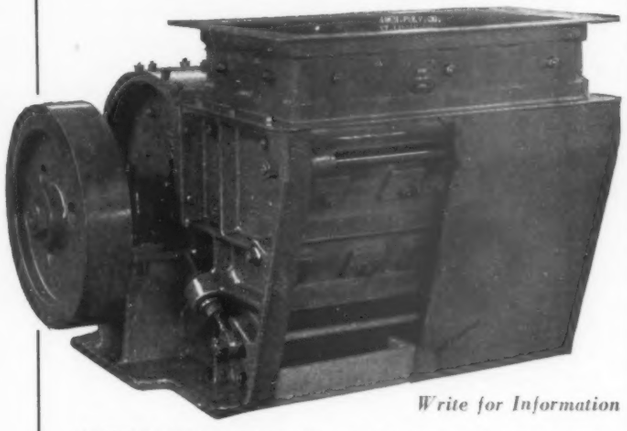
MANUFACTURER of
High Explosives
For
Quarries, Mines and General Industrial Purposes
NATIONAL POWDER COMPANY, ELDRED, PA.

Looking for Used Equipment?

Refer to the listings in the Broadcast Section in this issue for a wide variety of used and surplus machinery and supplies.

It's the "LAST MILE" for the Rocks that enter the AMERICAN Crusher



Write for Information

AMERICAN Hammermills and Ringmills finish 'em off quickly in reducing the most refractory rocks. "AMERICANS" are known throughout the industry for ruggedness, power and sterling dependability . . . they deliver 10 to 100 tons per hour, with no "time-outs." Comparatively low first cost, easily installed and they operate economically. Product comes out uniform and cubical.

AMERICAN PULVERIZER CO.
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NOW AVAILABLE!

FLINT GRINDING PEBBLES

FROM DOMESTIC SOURCES
EQUAL TO THE BEST IMPORTED

Maintain your best production with these genuine Nodular Flint Grinding Pebbles—the only high quality amorphous flint pebbles now on the American market!

"Arlcy" brand Flint Pebbles are ready for immediate shipment to you in any sizes from Laboratory to No. 5 —supplied either carefully sorted, classified and cleaned, or—at lower prices—in run-of-mine quality for ore and similar mining.

WRITE for samples in the size you use

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OSGOOD

AIR CONTROL

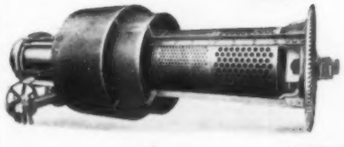
gives efficient, trouble-free service. You have complete "feel" of the load all the time.

Write for new Catalog.

THE OSGOOD COMPANY
MARION, OHIO

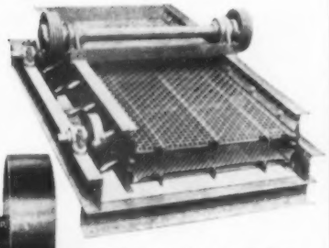
McLANAHAN EQUIPMENT *for*

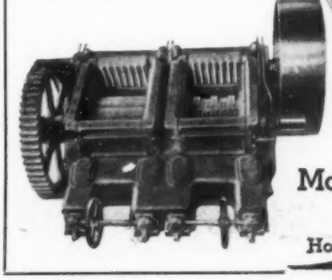
- STONE
- SAND
- GRAVEL



Single and double roll and jaw crushers, hammer mills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists.

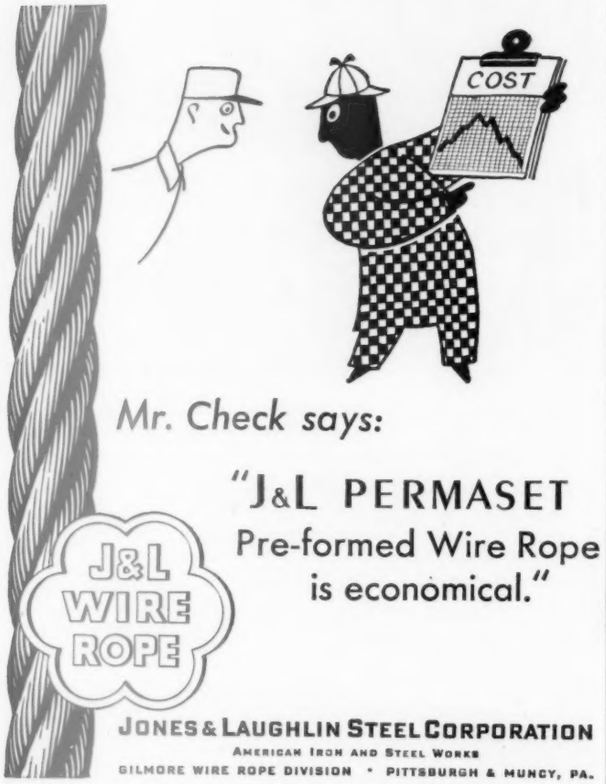
Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.





Let McLANAHAN & STONE solve your operating problems.

McLanahan & Stone Corporation
Established 1835
Hollidaysburg, Pennsylvania



Mr. Check says:

"J&L PERMASET
Pre-formed Wire Rope
is economical."

J&L WIRE ROPE

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
GILMORE WIRE ROPE DIVISION • PITTSBURGH & MUNCY, PA.

STOP

To consider the many advantages gained by installing Simplicity Gyrating Screens.

To check the many features of the Simplicity Gyrating Screen; such as the solid counter-balanced shaft; resilient corner supports, double crowned screen decks, and many others.

LOOK

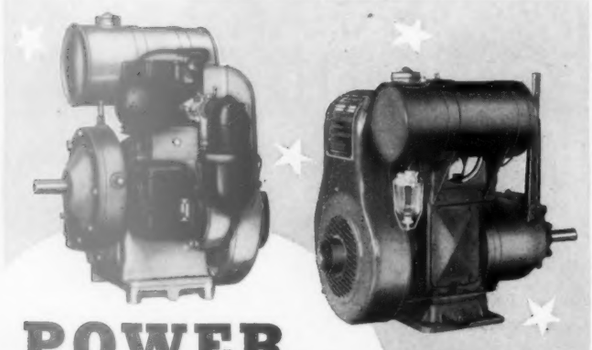
At the many successful installations of Simplicity Gyrating Screens and observe their capacity and screening efficiency.

At the finished details of construction where nothing has been omitted to make the Simplicity Gyrating Screen a complete job.

AND LISTEN

To all arguments pro and con; then buy the screen with the lowest ultimate cost per ton of material handled, which will be the Simplicity Gyrating Screen.

SIMPLICITY ENGINEERING CO.
DURAND MICHIGAN



POWER to WIN!

In terms of man-hours saved, and productive capacity of machines increased . . . Wisconsin heavy-duty air-cooled engines are supplying the United Nations and Industry-at-Large with the Power to Win!

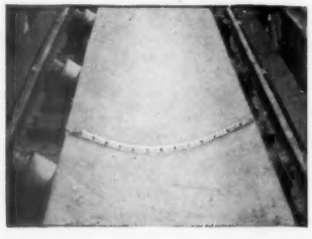
A complete range of sizes, from 1 to 35 hp., 1 and 4-cylinder models. Specified as standard power equipment by more than 300 manufacturers.

MOST POWER Per POUND

WISCONSIN MOTOR Corporation
MILWAUKEE, WISCONSIN, U. S. A.
World's Largest Builders of Heavy-Duty Air-Cooled Engines

Talcott Belt Fasteners

FOR CONVEYOR ELEVATOR AND TRANSMISSION BELTING



BELT MAN LUKE *Says:*

for SAFETY
STRENGTH
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ECONOMY
Insist on
TALCOTT
the
EASY FASTENER
TO APPLY

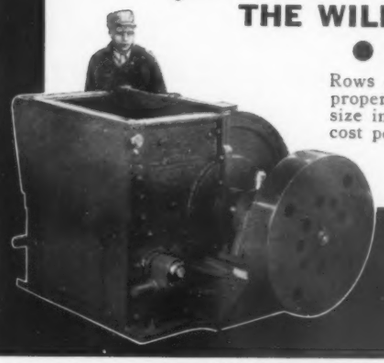
Send for Samples

W. O. & M. W. TALCOTT, Inc.
92 SABIN ST., PROVIDENCE, R. I.

for Making 1¼", ¾" or Agricultural Limestone...

THE WILLIAMS "SLUGGER" CRUSHER AND PULVERIZER

● Handles Large Stone or Screen Rejects ●



Rows of heavy, free swinging, fast revolving hammers, crush the material by impact until of proper size to pass through the grates. By reducing large rock to 1¼", ¾" or agricultural size in one operation, the "Slugger" has enabled operators to produce these sizes at a very low cost per ton and with small investment. Seven sizes—6 to 150 tons hourly capacity.

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802 St. Louis Ave. St. Louis, Mo.

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OLDEST AND LARGEST BUILDERS OF HAMMERMILLS IN THE WORLD
PATENT CRUSHERS GRINDERS SHREDDERS

AIR SEPARATORS
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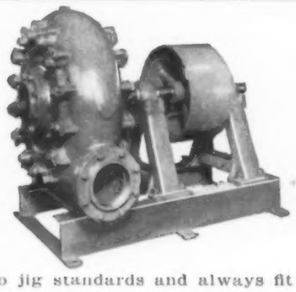
COMPLETE CONVEYOR SYSTEMS ENGINEERED TO YOUR NEEDS Sprout-Waldron engineers will want to know the nature of material to be moved, the distance involved, the capacity required. Their job is to give you most efficient performance at lowest cost. Talk to a Sprout-Waldron sales engineer. There's no obligation, and he may be able to save you money. *Literature on request.*

SPROUT, WALDRON & CO., INC.
137 SHERMAN ST. MUNCY, PA.

ELEVATORS, CONVEYORS, POWER TRANSMISSION EQUIPMENT

The Lightning
Sand and Gravel Pumps



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Complete stock of replacement parts, elbows and fittings carried for prompt shipment.

Replacement parts made to jig standards and always fit and always available.
For 30 years LIGHTNING pumps have faithfully performed the work they are intended for. We manufacture a type and size to fit the need. Simplicity of design and ease of handling have made these pumps one of the most popular. Write for catalog now.

Mfg. by
KANSAS CITY HAY PRESS CO., KANSAS CITY, MO.

BUSY DAYS AHEAD!

There'll be little time for breakdowns and delays in your aggregate production.

Make sure **now** that you are equipped with woven wire screen that stands the "gaff" under the toughest runs.

TWIN CITY SCREEN
It's Abrasion Resistant — Accurate — Longer Wearing!

ORDER YOUR "TWIN CITY" SCREEN TODAY

TWIN CITY IRON & WIRE CO.
31 W. WATER ST. ST. PAUL, MINN.
Write for Catalog No. 42

NAT-ALOY WIRE CLOTH

☒ VOTE **"YES"**

For this dependable, non-crystallizing, long-wearing Screen Cloth with "Nat-Aloy" Lock Crimp Meshes.

"IT'S THE PEOPLE'S CHOICE"
among profit-wise producers for precision separation and economical operation.

Stock shipments in all widths and all meshes. . . . Write for catalog No. 55.

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ROUND
SQUARE
SQUAROUND*
HEXAGON
PERFORATED PLATE
of every description
for maximum productiveness from your vibrating screens.
*Reg. U. S. Pat. Off.

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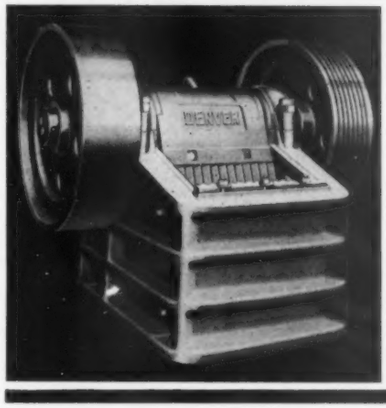
Sales Offices in Principal Cities. Please Consult Telephone Directory.



DENVER JAW CRUSHERS

The Denver Forced Feed Jaw Crusher is simple and has but few wearing parts. It is well adapted to coarse and fine crushing due to the forced feed principle. Rugged construction is used throughout including ribbed reinforced frame, chrome-steel eccentric shaft, roller bearings and heavy reinforced steel jaw bumper. Jaws are of manganese steel and are reversible. Bulletin No. C12-B describes bronze bearing crushers and Bulletin No. C12-B1 anti-friction bearing crushers.

Denver Equipment Co.
1400 Seventeenth Street
Denver, Colorado

New York, N. Y., 50 Church St., Salt Lake, Utah, McIntyre Bldg., Chicago, Ill., 1005, 69 W. Wash., Toronto, Ont., 45 Richmond St., Mexico, D. F., Edificio Jalisco

LOUISVILLE KENTUCKY

ROY-C-WHAYNE SUPPLY COMPANY.

800 W. MAIN PHONE WABASH 1375

1—Compressor, Ingersoll-Rand Stationary Type, Model 75-H; 6-cylinder, 7.5"x 6.25"x5"; 360 cu. ft. actual air. Skid mounted for direct connected power....$1100.00

2—Wagon Drills, Cleveland DR8; Good Condition; mounted on 2 pneumatic tires. Factory rebuilt. Each..... 900.00

1—Grader, "Caterpillar" No. 44, 10' blade; hand controlled, almost like new, 4 steel wheels, single frame..... 1100.00

1—R-B Power Sub-Grader, 9-10', powered by 4-cylinder Hercules Gasoline Engine; purchased new 1937. Available Now 1000.00

1—Locomotive, Plymouth, 8-ton, 36" gauge, Model 8TU, powered by gasoline engine. In good operating condition.... 2250.00

1—Locomotive, Whitcomb, 8-ton, 36" gauge, Type MA, powered by gasoline engine. In good operating condition..... 2100.00

1—Adnun Black Top Paver, powered by Gasoline Engines; just repaired in our shop 4000.00

1—Pulverizer, Model 2XA Gruendler, practically new 950.00

1—Track Unloader, Barber-Green, Serial No. 51-6-3; has 18" belt 12' long; powered by 2-cylinder Gasoline Engine; mounted on two steel wheels; good condition. Available immediately 300.00

1—Crawler Wagon, LaPlant-Choate, 10-yd. capacity, Hydraulic Control, Side Dump, Rock Type with Tractor Pump..... 1850.00

5—Generator Sets, Marble Card and Crocker & Wheeler, 5 KW, DC, 115-volt, Compound Wound, powered by 4-cylinder LeRoi and Continental Gasoline Engines; good operating condition; have been used as stand-by units. Each. 595.00

1—Generator Set, 30 to 35 KVA Otis Generator, 3 phase, 60 cycle, 220 volt, with belted exciter and rheostat for exciter, direct connected to Model D6100 "Caterpillar" Diesel Power Unit all mounted on steel channel base.....For Rent

1—Cruiser, Matthews 38', 125 HP Kermath Motor, sleeps 6, Built 1929, Reconditioned spring 1942 and in top condition throughout, complete equipment, now in water 2900.00

4—Koehring Dumptors, Model W55, 5.7 cu. yd. capacity, all have good tires and in good operating condition. Each. 2675.00

1—Diesel Electric Generator Plant, 225 HP, 6-cylinder Buckeye Diesel Engine, direct connected to 187 KVA Generator, 3 phase, 60 cycle, 480 volt, complete with switchboard and starting equipment for Diesel Engine. This is a complete power plant in A-1 condition located in Kentucky. Price 9860.00

1—Stationary Compressor, Sullivan Angle-Compound, Class WJ3, 14—8¾x10, 500 cu. in. displacement at 300 RPM, belt driven by 50 HP Electric Motor, complete with 4'x11' air receiver. Price upon application.

1—Generator Set, 82.5 KVA General Electric Generator, 3 phase, 60 cycle, 220 volt, direct connected to Model D13030 "Caterpillar" Diesel Power Unit, all mounted on steel channel base. This unit for rent only. Quotation upon request.

1—Generator Set, 70 KVA Allis-Chalmers Generator, 3 phase, 60 cycle, 220 volt, direct connected to Model D11000 "Caterpillar" Diesel Power Unit, all mounted on steel channel base. This unit for rent only. Quotation upon request.

1—Generator Set, 37.5 KVA General Electric Generator, 3 phase, 60 cycle, 208/120 volt, V-belt driven by Model D7700 "Caterpillar" Diesel Power Unit, all mounted on steel channel base. This unit for rent only. Quotation on request.

1—Generator Set, 20 KW Century Generator, 1 phase, 60 cycle, 110 volt, with exciter and rheostat for exciter, direct connected to Model PA50, 6-cylinder International Gasoline Power Unit, all mounted on steel channel base.....$1875.00

1—Generator Set, 10 KVA Fidelity Generator, 3 phase, 60 cycle, 220 volt, with taps for 110-volt lighting supply, with exciter and rheostat for exciter, direct connected to Model QXB Hercules Gasoline Power Unit, all mounted on steel channel base 1225.00

1—Multi-Roll Sizer, Allis-Chalmers, 7 Roll, 36" wide x 12" Diameter. Price on application.

1—Shovel, Bucyrus-Erie, Model 32B, 1 cu. yd. capacity, powered by Gasoline Engine 9150.00

1—Combination Shovel, Trenchhoe, Crane, Model No. 2 Northwest, ⅝ cu. yd. Shovel, ⅜ cu. yd. Trenchhoe, 45 ft. crane boom, powered by Gasoline Engine 5700.00

1—Trailer, Model 25 Northwest, 25-ton capacity, equipped with 4—9:00x15, 10-ply tires front, 8—7:50x15, 10-ply tires rear 1090.00

1—Jaw Crusher, Pioneer, 20x36 Roller Bearing, Latest Type 4845.00

15—Generator Sets, Brand new Model MG2 and MG5 Master Gasoline Electric Generators, 1 phase, 60 cycle..

50—Rock Drills, Brand new Cleveland, Model H77

10—Saw Rigs, Model No. 1, Beach Table Saws, rip and cross cut. Each..... 325.00

1—Angledozer, LaPlant Choate, Hydraulic, for Model RD8 "Caterpillar" Tractor, complete with Pump for Tractor..... 1000.00

DEPENDABLE USED EQUIPMENT

Liquidation!

From SALT LAKE CITY, UTAH

1—Mile of 55 lb. Railroad Track
1—Davenport 18 ton Saddle Tank Locomotive, 36" ga.
1—Brookville Gasoline Locomotive, 36" ga.
14—Standard (Western) 4 yd. Dump Cars
1—30" Feed Belt Conveyor, with 8'x11' hopper and grizzley.
1—Two Roll spike roll Crusher
2—18"x100' Troughing Belt Conveyor
2—Akins Classifiers 60", S-DP-H, with 22' tank, motor driven
2—Eimco Classifiers, single and double rake
1—Rotary Dryer 4'x25'
2—Stephens Adamson Redler Conveyors
2—Wilfley Sand Pumps, 2" and 3"
2—Kimball Krough 2" Sand Pumps
10—Centrifugal Pumps, 1½" to 3"
10—Steam and Duplex Pumps
28—Motors, 3 to 100 HP, 3/60/220-440 volt
1—Jaeger Cement Mixer
8—Redwood Tanks, 16'x12'
11—Rectangular Tanks, ¼" to ⅜" plate
1—Battery of 2—250 HP Boilers
1—Hamilton Engine Generator Set, 360 KW, 3/60/480

MISCELLANEOUS: Machine Shop, small tools, piping, valves, fittings, steel plate, etc.

Bulletin on request. Representative on premises.

1—Rotary Dryer, 6'x70', ½" shell
1—Rotary Kiln, 8'x84', ½" shell
7—Rotary Dryers from 3' dia. x 10' long to 8' dia. x 60' long
1—Crushing Rolls, 36"x16"
15—Jaw Crushers, 3"x5" to 84"x56"
15—Williams, Jeffrey, Gruendler, American Hammer Mills
10—Steel Bins 10 to 100 ton
25—Centrifugal Pumps, 2" to 6"
5—Tube Mills 4'x16', 5'x22', 8'x12'
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350 ton Butler aggregate cement bin, three compartments for aggregate, 1 sealed compartment for cement, with electric bin signals.

2-yd. aggregate cement batcher with Kron springless dial scales. Cement screw and elevator, 18" bucket elevator, complete with 10 yd. truck hopper and belt feeder. Fitzgibbon Boiler and automatic stoker-complete for heating aggregates and water. Electric motors and compensators.

Plant No. 2

80 ton 3 compartment aggregate bin with 2½ yd. four beam scale and batcher.

24" belt conveyor 80' long, complete with frame throughing and return idlers and new 24" belt and 5 yd. truck hopper and feeder. 25 H.P. Electrical motor and starter compensator.

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TWO PRACTICALLY NEW ELECTRIC MOTORS AND ONE OIL CIRCUIT BREAKER

1—Westinghouse squirrel cage induction motor—440 volt—3 phase—60 cycle—125 H.P.—1350 ft. lb. pull-out torque—160 Amp.—900 R.P.M. synchronous speed—their Type "CS" Special No. 56N475—Frame No. 774C—Serial No. 1856N475—$495.00 Net FOB Lima.

1—General Electric squirrel cage induction motor—2200 volt—8 pole—3 phase—60 cycle—100 H.P. at 900 R.P.M.—1050 ft. lb., their Type FT—frame 556—serial No. 7314496—maximum pull-out torque—full load current at 220 volts—26.5 amperes—direction of rotation counter-clockwise looking from shaft end. Bearing end thrust 750 lb. away from motor at shaft end. $450.00 Net FOB Lima.

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Approximately 100 Tons Heavy Structural Steel consisting I-beams, channels, angles, and H columns up to 50' lengths.

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1—50 ton American 4 wheel saddle tank, code boiler, standard gauge, being rebuilt.

1—22 ton American 4 wheel saddle tank, code boiler, standard gauge, overhauled.

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1—33 ton standard gauge Vulcan saddle tank, ASME Code boiler.

Crane or Dragline Fronts for Marion 37 and Bucyrus 50-B, One Each.

1—1½ Yd. Rehandling Clamshell Bucket, Practically New.

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Erie 100 ton 3 compt. bin with weigh batcher.
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200 ton rock storage bin, steel, heavy construction.
Fuller Kinyon bulk cement unloader, portable.
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Derrick Boat equipped with 20 ton Wiley Whirley, 100' bm., 12x12 Steam Hoist. Hull 33x114x10'.
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Gyratory crushers: K.V.S. 30, 37-S, 49; Telsmith 32, 8A, 8B; Traylor 8"; McCully 13"; 8", 6".
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Complete Rock Crushing Sand & Gravel Plants

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Vulcan 8 ton, std. gauge, gas.
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Whitcomb 4½ ton, std. gauge, gas.
2—Vulcan 6 ton, gas, 36" gauge.

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Several 24" Gauge Plymouth Gas Locomotives equipped with Buda Motors.

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6—16″ Steel Frame Belt Conveyors in 15′ sections, 6″ longitudinal channels, "Link-Belt" troughing and return idlers with anti-friction bearings, 85′ long c/c with motor and reduction gear drive—also 50′, 100′, 125′, 150′ and 185′ lengths.

AT COLLINWOOD, TENN.
1—6′x22″ Hardinge Pebble Mill, silex lined.
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1—7500 gal. Horizontal Oil Storage Tank.
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AT GLOUCESTER, MASS.
1—22″x50″ Champion Jaw Crusher.
1—10″x20″ Champion No. 1020 Crusher, with roller bearings.
1—3 compartment Blaw-Knox Bin, 75 tons, with Butler 3-beam weigher.
1—50′x100′ Portable Steel Building.
2—20″ Belt Conveyor—28′ c/c, 52′ c/c.
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12—Electric Motors, all 3/60/220 v.; 100 H.P., 75, 50, 30, 25, 15, 10, 5 and 3 H.P.

AT BELLEFONTE, PA.
1—5 roll Raymond High Side Pulverizer, with vacuum separator, Raymond exhauster, cyclone collector and interconnecting piping.

AT MIDDLE GRANVILLE, N. Y.
1—20″ Allis-Chalmers Superior McCully Gyratory Crusher, feed opening 20″ wide, capacity 125 t.p.h. at 3″ setting, 275 t.p.h. at 5½″. Shop No. 8311. With or without 125 H.P. 3/60/440 v. Slip Ring motor.
1—No. 4 Kennedy Gyratory Crusher, 8″ feed opening.
1—Set 36″ dia. x 16″ Sturtevant Crushing Rolls.
2—Sets 40″x16″ Colorado Iron Works Crushing Rolls.
4—Sturtevant Bucket Elevators, two steel encased, 36′ c/c, 10x6″ buckets.
1—Sturtevant Swing Hammer Mill.
1—70′ Jeffrey Steel Pan Conveyor, 24″ wide, steel frame.

AT NEWARK, N. J.
2—6′x16″ Hardinge Conical Ball Mills, iron lined, including ball charge; one with 50 H.P. Slip Ring motor.
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Width	Ply	Top & Bottom Covers
48″	8	1/8″ — 1/16″
42″	5	1/8″ — 1/16″
36″	6	1/8″ — 1/16″
30″	6	1/8″ — 1/16″
30″	5	1/8″ — 1/16″
24″	5	1/8″ — 1/32″
24″	4	1/8″ — 1/32″
20″	5	1/8″ — 1/32″
20″	4	1/8″ — 1/32″
18″	4	1/8″ — 1/32″
16″	4	1/8″ — 1/32″
14″	4	1/16″ — 1/32″
12″	4	1/16″ — 1/32″

TRANSMISSION BELTING HEAVY-DUTY— FRICTION SURFACE

Width	Ply	Width	Ply	Width	Ply
18″	6	10″	6	6″	5
16″	6	10″	5	5″	5
14″	6	8″	6	4″	5
12″	6	8″	5	4″	4
12″	5	6″	6	3″	4

ELEVATOR BELTING HEAVY DUTY— RUBBER COVERED

Width	Ply	Top & Bottom Covers
12″	6	1/16″ — 1/16″
14″	6	1/16″ — 1/16″
16″	6	1/16″ — 1/16″
18″	6	1/16″ — 1/16″

ENDLESS "V" BELTS
"A"—WIDTH—All Sizes
"B"—WIDTH— " "
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9"x15"-A & 13"x24"-B Farrel Jaw types
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Malleable buckets 6", 8", 12", 14", 15" to 20"
300' Elevator Belt 20" wide 8-ply Waterproofed
15 Tons Selected Sprockets, Chains, Etc.
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75-hp. F-M Diesel type YV, 2-cyl. 300-RPM
25-hp. National 2-drum Electric Dragline Hoist
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60-yd. Butler Bin with Dial scale
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5 Kron Dial Scales, 250 to 2,000 lb. cap.

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1—NEW and 1—Sec. Hd. 9"x15" Jaw Crusher.
1—9"x16" CLIMAX No. 2 Jaw Crusher.
2—#1030 CHAMPION Roller Bearing Jaw Crushers.
2—12"x26" CHAMPION No. 6 Jaw Crushers.
1—4½" TRAYLOR T Fine Gyratory Crusher.
1—Set STURTEVANT Balanced Crushing Rolls 21"x10½".
2—M-20 QUAKER CITY Hammer Mills.
1—24" wide LINK-BELT Apron feeder.

JOHNSON AND HOEHLER, Inc.
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One (1)—one ton single drum hoisting machine for steam or air.

One (1)—No. 1 Horizontal Hydrator for five tons of lime per hour. This was originally built as a Schulthess but has been remodeled and is now a Kuntz Hydrator according to the latest Kuntz patents and improvements.

One (1)—William's Hammer Mill with Hammers complete This is a machine that was remodeled to take care of lime instead of stone, but it will crush either lime or stone and is of large capacity and will be sold for a song. We used it for experimental purposes only.

If you are in need of any lime plant equipment call us because we believe that we can dig it up for you—new or secondhand.

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Dodge 7 x 9 Penna 10 x 16
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Rolls and 1½ Sturtevant
rotary crushers—ball and rod mills 4' x 8', 4' x 9'
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00 Raymond with motor
2—6x10 Feinc Filters
1—16x12' Dorr
50 H.P. slip ring motor with drum control
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Portable and stationary, belt with elec. or gas power, sizes from 20 cu. ft. to 1,000 cu. ft.

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30—Riveting Hammers, Thor, Ingersoll-Rand, Chicago - Pneumatic, Boyer, and Sullivan.

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12—Paving Breakers, Ingersoll - Rand, Gardner-Denver, Sullivan and Thor.

AIR DRILLS
10—Air Drills, Chicago Pneumatic and Cleveland.

SPADES
7—Spades, Ingersoll-Rand. Weight, 23 to 40 lbs. each.
Also a number of grinders, wood bores, and drifters.

WAGON DRILLS
2—Gardner-Denver wagon drills with 16' high derricks. Has hand winches for raising and lowering. Equipped with model No. 21 Gardner-Denver drills. Will channel 30' deep.
1—Ingersoll-Rand wagon drill with derrick mounted on four steel wheels, equipped with Ingersoll-Rand air hoist for steel drill. Has Ingersoll-Rand drifter broached for 1¼" steel.
1—Cleveland wagon drill, Model DR-6, mounted on two pneumatic tired wheels. Latest model, can adjust for any direction drilling. Equipped with air feed and blowing device.

CRUSHERS
3—Jaw Crushers: 1—12"x20" Acme; 1—10"x20" Climax; 1—9"x16" Acme.
2—Gyratory Crushers: 1—No. 5 Allis-Chalmers;: 1—No. 5 Austin.

PUMPS (DREDGE)
2—10" Morris Dredge pumps, 1 to direct connect to motor, other belt drive.
4—Belt driven: 3 Morris Mang., 1—8"; 2—6"; 1—8" Cataract.

SHOVEL AND PULL SHOVEL ATTACHMENTS
1—2 yd. Link Belt Shovel front for K-55 crane. Boom 30', stick 18' and 2-yd. dipper.
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2—1 yd. Shovel Fronts for Model GA2 Erie gas air, boom 24', stick 17' with 1 yd. dipper.
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1—1 yd. N.W. shovel front; boom 24'; stick 18'; with 1 yd. dipper for use on a model No. 105 N.W. crane.
2—1 yd. N.W. pull shovel attachment; boom 24' 9", dipper arm 6' 6" with 1 yd. dipper for use on a No. 4 N.W. crane.
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1—½ yd. skimmer scoop attachment for Byer's Bearcat crane. Boom 14' 3" with ½ yd. bucket.

WAGONS
2—Martin Special wagons, with two sets of 4 wooden wheels, steel rims and steel artillery hubs. Cap. 15 tons.
1—Wooden body, 2 door dump on 2 wheel trucks. Mfg. Little Red Wagon Co. Body dim. 40"x26"x6'4".
4—La Plante Choate all steel 2 door bottom dump, wagons mtd. on 4 wheel trucks, capacity 19 tons.
2—La Plante Choate all steel 2 door bottom dump mounted on 4 wheel trucks. Cap. 8 tons.
2—La Plante all steel two door dump wagons, mounted on 4 wheel trucks. Dim. body 44"x63"x36".

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25 Ton BROWNING & 30 Ton AMERICAN Locomotive.
25 Ton LINK BELT K-48 Electric, 70 Ft. Boom.
21½ Yd. Lorain Model 95, Diesel Dragline.

CATERPILLAR SHOVELS

½ Yd. P. & H. Gas & ⅜ Yd. Insley Gas.
¾ Yd. KOEHRING Gasoline.
¾ Yd., 1¼ Yd., 2 Yd., 4 Yd. & 8 Yd. MARION Electrics.
1 Yd. NORTHWEST Gas & 7/8B2 Steamer.
1¼ Yd. BUCYRUS 41B Steamer.
1½ Yd. Lima 750 Diesel.
1½ Yd. KOEHRING 601—Gas.

OIL DISTRIBUTORS' TRUCKS

3—1000 gal. ETNYRE Mack.

DUMP CARS

46—KOPPEL 1½ Yd., 24 & 30 In. Ga., V Shaped.
15—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
20—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.

BALL, ROD AND TUBE MILLS

6x8 Continuous Pebble Mill.
5x5 Batch Mill.
5'x22" HARDINGE CONICAL Dry Ball Mill.
6'x22" HARDINGE CONICAL Pebble Mill.
4x8, 8x6, & 10x9 Straight Ball Mills.
8'x22" HARDINGE CONICAL Ball or Pebble Mill.
4x16, 5x18, 5x22, & 6x22 Tube Mills.
3½x8 & 5x7 Air Swept Tube Mills.
2x4½, 5x12 and 6x12 ROD MILLS.
4x16 Smidth Tube Mill Silex.
5½x20 Smidth Tube Mill Mang. Lining.
5½x18 P & H Tube Mill Silex.

PULVERIZERS

No. 1 Sturtevant Ring Roll.
RAYMOND Auto. Pulverizer No. 0000, 0 & 3.
RAYMOND Imp Mills No. 4, 32 & 55.
GRUENDLER XXB Mill & Jay Bee No. 3 & 4.
RAYMOND 4 & 5 ROLL MILLS & 5 Ft. Chaser Mill.

SEPARATORS AND COLLECTORS

14 ft., 8 ft. and 12 ft. Separators

ROLL CRUSHERS

36x60 Fairmont Single Roll.
36x20 Diamond Double Roll.
24x24 & 36x16 & 36x20 Diamond Double Roll.

JAW CRUSHERS

10x8, 13x7½, 14x7, 15x9, 15x10, 16x9, 16x12, 16x10, 18x11, 20x8, 20x6, 20x10, 20x12, 20x11, 26x12, 30x15, 30x13, 36x30, 36x18, 36x14, 36x15, 36x9, 36x6, 38x18, 36x10, 36x24, 42x9, 48x36, 60x42, 84x66, 36x16, 9x36.
30x10 Gruendler Roller Bearing.

CONE & GYRATORY CRUSHERS

18 in., 24 in., 30 in., 36 in. and 48 in. Symons Disc.
21K & 18N Allis Chalmers.
4—10 TZ Traylor 4 Ft. Gyratory.
4—Nos. 5, 3 & 6 Austin Gyratory.
2—Traylor T-12 Bulldog Gyratory.
8 in. Traylor T. Gyratory, Telsmith No. 9.
17 Gates K—Nos. 3, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 105.
6, 10 & 13 Inch Superior McCullys.
KENNEDY: Nos. 19, 25, 27, 39 & 49.
16" Traylor.
7 Ft., 5 Ft., 4 Ft. and 3 Ft. Symons Cone.

DRILLS

4—SANDERSONS 14 & LOOMIS 44.
7—Ingersoll-Rand Wagon Drills, FB & M2.
29T ARMSTRONG Well Drill.

HOISTING ENGINES

7 Gasoline 15, 40, 60 & 100 H.P.
17 Steam 7x10, 8½x10 and 10x12.
8 Electric 20, 35, 50, 60, 100 & 150 H.P.

HAMMER MILLS

4 Jeffreys: 24x18-A, 36x24-B, 42x36-E & 42x48-B.
Williams No. 1 Jumbo Jr., & No. 6 Universal.
Nos. 4, 6 & 8 Williams Jumbo.
No. 36 Am. Ring Roll.
Gruendler No. 6X.

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72 Ton BLAW-KNOX 2 Compt.; also 250 ton.
100 Ton BLAW-KNOX 2 Compt.

CEMENT BIN

400 Bbl. Portable BUTLER Bulk Cement Bin with Fuller Full Automatic Electric Push Button Weigh Batcher.

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150 K.W. GEN. ELEC. 3/60/2200-250-275 volt.
200 K.W. RIDGWAY 3/60/2200-250-275 v., 900 rpm.

DIESEL GENERATORS

240 K.W. F.M. 3/60/2300 v.
300 K.W. Worthington 3/60/2400 v.
125 K.W. F.M. 250 v. D.C.

RAYMOND MILL

5 Roll High Side.

CONVEYOR PARTS

BELT: 1000 Ft. 60 In., 700 Ft. 42 In., 600 Ft. 36 In., 800 Ft. 30 In., 1642 Ft. 24 In., 517 Ft. 20 In., 297 Ft. 18 In., 1000 Ft. 14 In. & 16 In.
IDLERS: 36 In., 30 In., 24 In., 20 In., 18 In.
Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In., 30 In. & 36 In. Sections.

ROTARY DRYERS AND KILNS

36 In. x 20 Ft., 3 Ft. x 30 Ft., 4 Ft. x 30 Ft., 54 In. x 30 Ft., 42 In. x 24 Ft., 5 Ft. x 30 Ft., 5 Ft. x 16 Ft., 5 Ft. x 60 Ft., 6 Ft. x 60 Ft., 6 Ft. x 70 Ft., 70 In. x 40 Ft., 5x30 & 8x84 Double Shell Dryers, 8x110, 7½x100, 8x125 & 10x20 Kilns.

STEEL DERRICKS

GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

LOCOMOTIVES

DIESEL: 7—4½, 8 and 15 Ton 36 & 42 In. Ga.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 17 Ton & 40 Ton.

SCREENS

VIBRATING: 2x4, 3x6, 2x8, 3x8, 3x5, 4x5, 4x8, 4x10, 4&x12, HUMMER, ROTEX, NIAGARA & ROBINS, LINK BELT & HURON.
REVOLVING: 3x12, 3x16, 3½x18, 3x24, 4x16, 4x20, 4x23, 4x24, 5x30, 5x30, 6x20.

SAND WASHERS AND CLASSIFIERS

4 LINK-BELT A-60 In. Classifiers.
7 ALLEN Cones 4 Ft., 5 Ft., 6 Ft., 8 Ft.
30" Reciprocating Plate Feeder.

RAILROAD CARS

12—50 Ton Cap. Battleship Gondolas.
7—50 Ton Cap. Flat Cars.

SAUERMAN DRAG AND SLACKLINES

1—¾ yd. Gas 1—1½ yd. Electric
1—1 yd. Electric 3—2 yd. 3 yd. & 4 yd. Electric

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12 Worthington 180 Drifters.
8 Gardner-Denver 15 Jackhammers.
45 Ingersoll-Rand Drifters 870, N75, X71, DA35.
11 Ingersoll-Rand 849 Jackhammers.

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DRILL SHARPENERS

5 I.R. 4K Shank Grinders.
6 Ingersoll-Rand 54, 40, 50 & 34's.
7 Sullivan Class A, & C.
8 Gardner-Denver 3A & No. 6DS.

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- 1 Vulcan Dryer; 7'x55'; ⅝" steel plate
- 1 Rotary Calciner; 6'x70'
- 2 Devine Rotary Vacuum Dryers 5'x30'
- 2 Smidth Tube Mills; 4'6x18'; lined
- 4 Tyler-Hummer Screens 3'x5'; with generator
- 7 porcelain lined Pebble Mills up to 48"x60"
- 6 Buhrstone lined Pebble Mills; 6'x6'
- 1 Thropp Silex lined 7'x6' Pebble Mill
- 1 Continuous Steel Ball Mill 5'x8'
- 1 Abbe Unlined Iron Ball Mill 54"x42"

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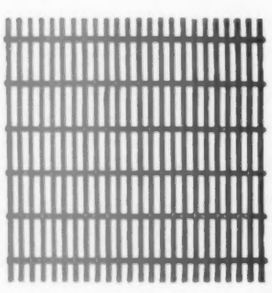

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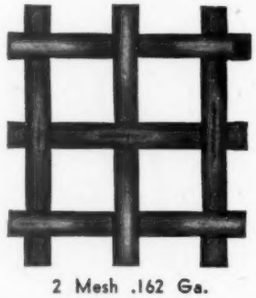

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